SONY

COLOR VIDEO CAMERA

FCB-IX47/47P

FCB-IX470/470P

SERVICE MANUAL

TABLE OF CONTENTS

SECTION 1 OPERATING INSTRUCTIONS

Overviews 1-2
Notes on Use 1-2
Specifications 1-3
Dimensions 1-5
Location and Function of parts 1-5
Input and Output Connector 1-5

SECTION 2 ADJUSTMENT

2-1. PREPARATION ..... 2-1 (E)
2-1-1. List of Service Tools ..... 2-1 (E)
2-1-2. Connection for Adjustment ..... 2-2 (E)
2-1-3. Control Software Adjustment ..... 2-3 (E)
2-1-4. Precaution ..... 2-3 (E)
1. Setting the Switch ..... 2-4 (E)
2. Adjusting Procedure ..... 2-4 (E)
3. Subject ..... 2-4 (E)
2-1-5. Adjusting Remote Commander ..... 2-5 (E)
1. Using the adjusting remote commander ..... 2-5 (E)
2. Precautions upon using the adjusting remote commander ..... 2-5 (E)
2-1-6. Data Processing ..... 2-6 (E)
2-2. INITIALIZATION OF D, E, F PAGE DATA ..... 2-7 (E)
1. Initializing the D, E, F Page Data ..... 2-7 (E)
2. Modification of D, E, F, Page Data ..... 2-7 (E)
3. D Page Table ..... 2-8 (E)
4. F Page Table ..... 2-9 (E)
5. E Page Table ..... 2-12 (E)
2-3. VIDEO SYSTEM ADJUSTMENTS ..... 2-14 (E)
1. 28MHz Origin Oscillation Adjustment (VC-211 board) ..... 2-14 (E)
2. SYNC Level Adjustment (VC-211 board) ..... 2-14 (E)
3. BURST Level Adjustment (VC-211 board) ..... 2-15 (E)
4. G-CAM flip Adjustment ..... 2-15 (E)

5. HALL Adjustment ..... 2-16 (E)
6. Flange Back Adjustment ..... 2-17 (E)
6-1. Flange Back Adjustment (1) ..... 2-17 (E)
6-2. Flange Back Adjustment (2) ..... 2-17 (E)
7. Flange Back Check ..... 2-18 (E)
8. Picture Frame Setting ..... 2-18 (E)
9. Color Reproduction Adjustment ..... 2-19 (E)
10. IRIS IN/OUT Adjustment ..... 2-20 (E)
11. MAX GAIN Adjustment ..... 2-21 (E)
12. Auto White Balance Standard Data Input ..... 2-21 (E)
13. Auto White Balance Adjustment ..... 2-22 (E)
14. White Balance Check ..... 2-22 (E)

SECTION 3 SPARE PARTS

3-1. NOTES ON SPARE PARTS 3-1
3-2. EXPLODED VIEW 3-2
3-3. ELECTRICAL PARTS LIST 3-3

SECTION 4 DIAGRAMS

4-1. BOARD LOCATION 4-1
4-2. BLOCK DIAGRAM 4-2
4-3. SCHEMATIC DIAGRAMS AND PRINTED CIRCUIT BOARDS 4-6

SAFETY RELATED COMPONENT WARING

Components identified by shading and ⚠ marked on the schematic diagrams and parts list are critical to safe operation. Replace these components with SONY parts whose part numbers appear as shown in this manual or in supplements published by SONY.

http://getMANUAL.com

第1章
取扱説明

取扱説明書を抜粋し、そのまま記載しています。

SONY

3-865-392-**01** (1)

Color Video Camera

取扱説明書

お買い上げいただきありがとうございます。

この取扱説明書には、事故を防ぐための重要な注意事項と製品の取り扱いかたを示してあります。**この取扱説明書をよくお読みのうえ、**製品を安全にお使いください。お読みになったあとは、いつでも見られるところに必ず保管してください。

FCB-IX47/47P/470/470P

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SECTION 1
OPERATING INSTRUCTIONS

This section is extracted from operation manual.

SONY

3-865-392-**01** (1)

Color Video Camera

Operating Instructions

Before operating the unit, please read this manual thoroughly and retain it for future reference.

FCB-IX47/47P/470/470P

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Product warranty and after-sales service

The duration and conditions of the warranty for the FCB-IX47/470/P depend on the country in which the unit was purchased. For more information, please contact your Sony dealer.

概要

本機は、18倍電動ズームレンズを内蔵したカラービデオカメラです。カメラの操作は、RS-232C通信によってパソコンで行います。

使用上のご注意

オートフォーカス

オートフォーカスONの状態で、24時間以上連続使用しないでください。レンズの故障の原因になります。

Zero Lux Shot 機能 (FCB-IX470/470Pのみ)

Zero Lux Shot 機能を屋外等の明るいところではお使いにならないでください。故障の原因になります。

ソフトウェア

当社が提供するデモンストレーションソフトウェアや、お客様自作のアプリケーションソフトウェアによって生じた、お客様のハードウェアおよびソフトウェアの損害等について、当社は一切その責任を負いませんので、あらかじめご了承ください。

操作

パソコンのコントロールソフトは、カメラの電源を入れて映像が出たあとに立ち上げてください。

取り扱い

内部に水などの液体をこぼしたり、燃えやすいものや金属類を落としたりしないでください。そのまま使用すると、火災や感電、故障、事故の原因になります。

使用・保存場所

非常に明るい被写体(照明や太陽など)を長時間にわたって撮影しないでください。また、次のような場所での使用や保管は避けてください。

- 極端に暑い所や寒い場所(動作温度 0℃～+50℃)
- 湿気、ほこりの多い所
- 雨のあたる所
- 激しく振動する所
- 強力な電波を発するテレビやラジオの送信所の近く
- 蛍光灯や窓の反射の影響を受ける所
- 不安定な照明の下(フリッカーを起こします。)

お手入れ

レンズ表面に付着したごみやほこりは、市販のブロアーで払ってください。

その他

- プリント基板に力を加えないでください。
- 定格外の電圧は加えないでください。
- 基板に触れる場合は静電気破壊を予防するため、アースバンドを使用してください。
  包装する場合は、付属の帯電防止保護袋をお使いください。
- 輸送する場合は、ソニーから出荷したカートンボックスに入れてください。

異常や不具合が起きたときは、お買い上げ店またはソニーのサービス窓口にご相談ください。

Overview

The FCB-IX47/470/P is a color video camera with a built-in, electrically driven zoom lens with a maximum resolving power of ×18. It is operated from a personal computer through an RS-232C connection.

Notes on Use

Auto Focus

Do not use the camera continuously for over 24 hours with the auto focus on. Doing so may damage the camera lens.

Zero Lux Shot Function (FCB-IX470/470P only)

Do not use the Zero Lux Shot function outdoors or at any other bright places.
Doing so may damage the camera.

Software

Sony can assume no responsibility for any damage to the customer's hardware or software that may result from use of demonstration software provided by SONY or programs written by the customer.

Operation

Start the camera control software in your PC after you turn on the camera and the image is displayed.

Handling

Be careful not to spill water or other liquids on the unit, or allow combustible or metallic objects to fall inside the body. If used with foreign matter inside, the camera is liable to fail, or be a cause of fire or electric shock.

Operation and storage locations

Do not shoot images that are extremely bright (e.g., light source, sun, etc.) for long periods of time. Do not use or store the camera in the following extreme conditions:

- Extremely hot or cold places (operating temperature 0°C to +50°C [32°F to 122°F])
- Damp or dusty places
- Where it is exposed to rain
- Where it is subject to strong vibration
- Close to generators of powerful electromagnetic radiation such as radio or TV transmitters.
- Where it is subject to fluorescent light reflections
- Where it is subject to unstable (flickering, etc.) lighting conditions.

Care of the unit

Remove dust or dirt on the surface of the lens with a blower (commercially available).

Other

- Do not apply excessive force to the printed circuit board.
- Do not apply excessive voltage. (Use only the specified voltage.)
- Wear a wrist band when touching the printed circuit board. This will prevent static electricity that could damage the board.
  Use the supplied antistatic bag to package the board.
- When you transport the camera, repack it as it was originally shipped.

In case of abnormal operation, contact your authorized Sony dealer or the store where you purchased the product.

仕様

撮像素子	1/4インチ CCD
レンズ	18倍ズーム、f=4.1～73.8 mm、F1.4～3.0
フィルターネジ径	∅37 mm
最短撮像距離	800 mm(ワイド端:10 mm)
同期方式	内部同期
電源電圧	DC 6～12 V
消費電力	FCB-IX47/47P:2.8 W
	FCB-IX470/470P:4.2 W(LED ON時)
動作温度	0～50 ℃
保存温度	−20～60 ℃
外形寸法	FCB-IX47/47P:51.2×57.8×92.4 mm
(幅×高さ×奥行き)	FCB-IX470/470P:52.3×58.8×92.4 mm
質量	FCB-IX47/47P:約205 g
	FCB-IX470/470P:約220 g
付属品	2ピンハーネス(1)、3ピンハーネス(1)、
	6ピンハーネス(1)、10ピンハーネス(1)、
	12ピンフラットケーブル(1)、取扱説明書(1)

本機の使用および外観は、改良のため予告なく変更することがありますが、ご了承ください。

保証とアフターサービスについて

本機の保証期間および保証条件は、販売地域(国内、海外)によって異なることがあります。お手数ですが、お買い上げ店にお問い合わせ、ご確認いただきますようお願い申し上げます。

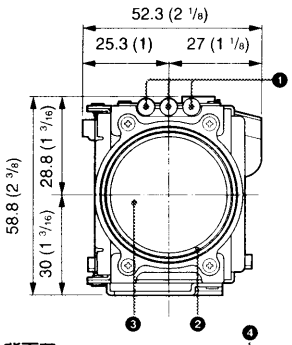
Specifications

Image device	1/4-inch, CCD
Lens	×18 zoom, f=4.1–73.8 mm, F1.4 – 3.0
Filter thread	∅ 37 mm
Minimum object distance	800 mm (wide: 10 mm)
Synchronization:	Internal
Power voltage:	DC 6 – 12V
Power consumption:	FCB-IX47/47P: 2.8 W
	FCB-IX470/470P: 4.2 W (When LED is ON)
Operating temperature:	0 – 50°C (32 – 122°F)
Storage temperature:	-20 – +60°C (-4 – 140°F)
Dimensions (w/h/d)	FCB-IX47/47P:
	51.2 × 57.8 × 92.4 mm
	(2 1/8 × 2 3/8 × 3 3/4 in.)
	FCB-IX470/470P:
	52.3 × 58.8 × 92.4 mm
	(2 1/8 × 2 3/8 × 3 3/4 in.)
Mass:	FCB-IX47/47P: Approx. 205 g (7 oz)
	FCB-IX470/470P: Approx. 220 g (8 oz)
Accessories:	2-pin harness (1), 3-pin harness (1),
	6-pin harness (1), 10-pin harness(1),
	12-pin flat cable (1)
	Operating Instructions (1)

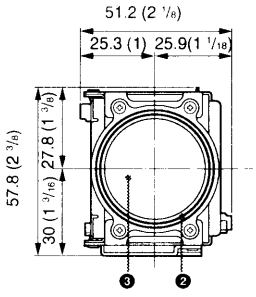
Design and specifications are subject to change without notice.

正面図

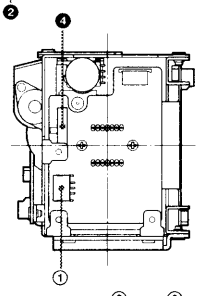
FCB-IX470/P



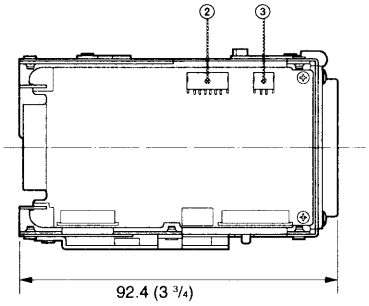
FCB-IX47/P



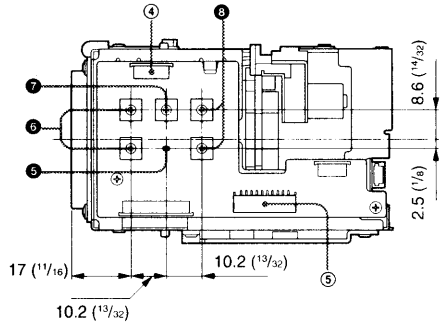
背面図



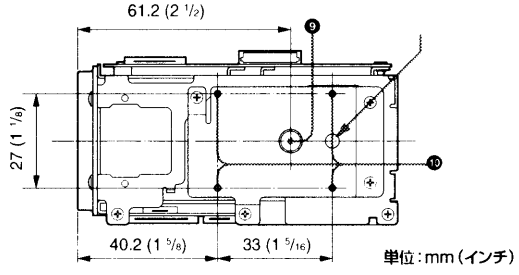
左側面図



右側面図



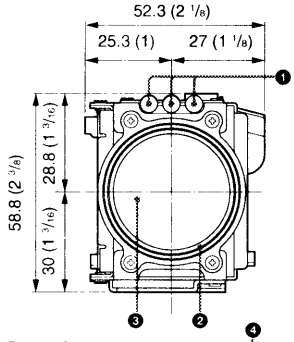
底面図



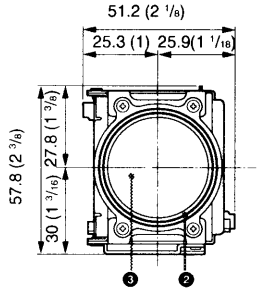
単位：mm（インチ）

Front view

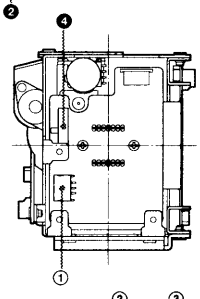
FCB-IX470/P



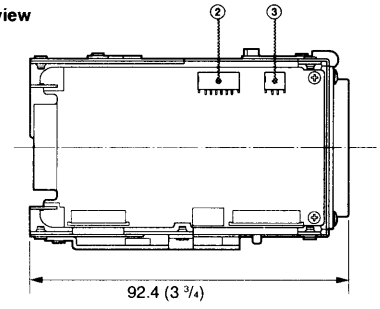
FCB-IX47/P



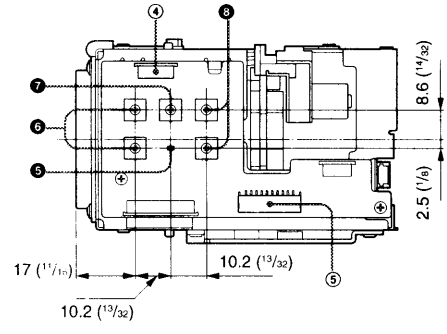
Back view



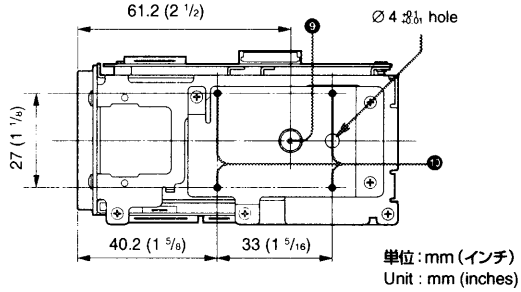
Left side view



Right side view



Bottom view



単位：mm（インチ）
Unit : mm (inches)

外観寸法図

使用目的に合わせて本機の筐体を製作される際は、左記の外観寸法図を参考にしてください。

各部の名称と働き

❶ IR LED (FCB-IX470/470Pのみ)

❷ フィルターネジ

37mm口径のカムコーダ用コンバージョンレンズを取り付けることができます。

❸ レンズ

❹ バックアップスイッチ

電源OFF時のカメラの状態や、カメラのプリセット機能によって記憶された内容をバックアップすることができます。

INT側:内蔵のリチウム2次電池によりバックアップします。

OFF側:バックアップしません。(次に電源を入れると、工場出荷状態になります。)

EXT側:CN705コネクターから入力した外部バッテリー電源(3V)により、バックアップすることができます。

❺ オートフォーカス表示ランプ

オートフォーカスONのときは赤色に点灯し、OFFのときは消えます。

❻ ズームボタン

WIDE(広角)を押すと、画角が大きくなります。

TELE(望遠)を押すと、画角が小さくなります。

❼ オートフォーカスON/OFFボタン

ボタンを押すごとにON/OFFが切り換わります。

❽ フォーカスボタン

NEAR側を押すと、ピントが合う対物距離が短くなります。

FAR側を押すと、ピントが合う対物距離が長くなります。

❾ 三脚用ネジ穴(1/4-20UNC)

ネジ深さ7mm。

取り付け時に、ご使用ください。

❿ M2ネジ穴

ネジ深さ4mm。

取り付け用に、ご使用ください。

入出力コネクター

① CN705(3ピンコネクター)

バックアップ用電源入力用コネクター

ピンNo.	ケーブル色	入力信号
1	赤	BATT IN(3V)
2	黒	GND
3		NC

② CN301(6ピンコネクター)

ビデオ・Y/C出力用コネクター

ピンNo.	ケーブル色	出力信号
1	茶	GND
2	赤	C OUT
3	オレンジ	GND
4	黄	Y OUT
5	白	GND
6	青	VIDEO OUT

Dimensions

The figure to the left shows the dimensions of the camera. (If you need to build a case for the camera, use these dimensions.)

Location and Function of Parts

❶ **IR LED (FCB-IX470/470P only)**

❷ **Filter thread**

The conversion lens (37mm aperture for the Camcorder can be connected).

❸ **Lens**

❹ **Backup switch**

This switch allows you to specify the backing up of camera settings (made by the preset function) even when the camera is turned off.

INT: Settings are maintained by the secondary built-in lithium battery.

OFF: Settings are not maintained when the camera is turned off. (Settings revert to their factory settings when the camera is next turned on.)

EXT: Settings are maintained by power input from an external battery (3V) through the CN705 connector.

❺ **AF indicator**

Red: AF is on. Off: AF is off.

❻ **Zoom button**

Press the "WIDE (wide-angle)" side to obtain a larger angle of view and the "TELE (telephoto)" side to have a smaller angle of view.

❼ **AF (Auto Focus) ON/OFF button**

Press AF (Auto Focus) ON/OFF button to turn the AF on or off.

❽ **Focus button**

Press the "NEAR" side to focus on closer objects and the "FAR" side to focus on farther objects.

❾ **Tripod screw hole (1/4-20 UNC)**

The screw hole depth is 7 mm.

Use this hole for installation.

❿ **M2 Screw holes**

The screw hole depth is 4 mm.

Use these holes for installation.

Input and Output Connector

① **CN-705 (3-pin connector)**

For backup power input

Pin No.	Cable colors	Input signal
1	Red	BATT IN (3V)
2	Black	GND
3		NC

② **CN-301 (6-pin connector)**

For video and Y/C output

Pin No.	Cable colors	Output signal
1	Brown	GND
2	Red	C OUT
3	Orange	GND
4	Yellow	Y OUT
5	White	GND
6	Blue	VIDEO OUT

③ CN501 (2ピンコネクター)

電源入力用コネクター

ピンNo.	ケーブル色	入力信号
1	赤	DC IN (6～12 V)
2	黒	GND

④ CN805 (12ピンコネクター)

外部コントロール用コネクター

ピンNo.	入出力信号	ピンNo.	入出力信号
1	GND	7	KEY AD 4
2	GND	8	KEY AD 5
3	KEY AD 0	9	KEY AD 6
4	KEY AD 1	10	AF ON LED
5	KEY AD 2	11	DIGITAL ZOOM POS
6	KEY AD 3	12	OPTICAL ZOOM POS

⑤ CN802 (10ピンコネクター)

VISCA接続用コネクター (RS-232C)

ピンNo.	ケーブル色	入出力信号	ピンNo.	ケーブル色	入出力信号
1	茶	TXD IN	6	青	DTR OUT
2	赤	DTR IN	7	紫	DSR OUT
3	オレンジ	DSR IN	8	灰	RXD OUT
4	黄	RXD IN	9	黒	GND
5	白	TXD OUT	10	黒	NC

③ CN-501 (2-pin connector)

For power input

Pin No.	Cable colors	Input signal
1	Red	DC IN (6 –12V)
2	Black	GND

④ CN-805 (12-pin connector)

For external equipment

Pin No.	In/output signal	Pin No.	In/output signal
1	GND	7	KEY AD 4
2	GND	8	KEY AD 5
3	KEY AD 0	9	KEY AD 6
4	KEY AD 1	10	AF ON LED
5	KEY AD 2	11	DIGITAL ZOOM POS
6	KEY AD3	12	OPTICAL ZOOM POS

⑤ CN-802 (10-pin connector)

For VISCA interface (RS-232C)

Pin No.	Cable colors	In/output signal
1	Brown	TXD IN
2	Red	DTR IN
3	Orange	DSR IN
4	Yellow	RXD IN
5	White	TXD OUT
6	Blue	DTR OUT
7	Purple	DSR OUT
8	Gray	RXD OUT
9	Black	GND
10	Black	NC

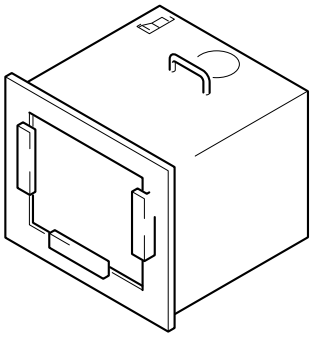
SECTION 2
ADJUSTMENT

2-1. PREPARATION

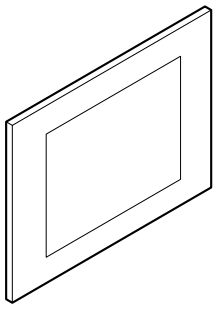
2-1-1. List of Service Tools

J-6082-200-A	Pattern Box PTB-450

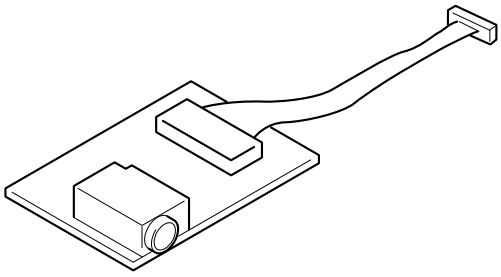
· Light source for test chart



J-6080-621-A	Clear Chart

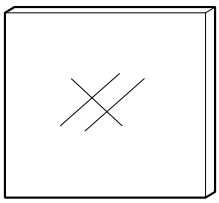


J-6431-930-A	Adjustment Commander Relay Jig

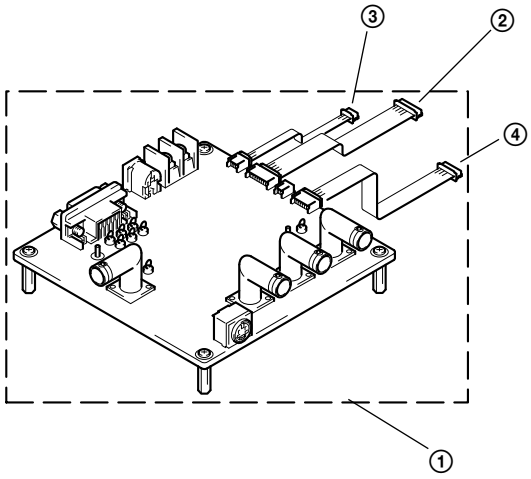


J-6080-808-A	ND Filter 1.0
J-6080-818-A	ND Filter 0.3

· White Balance Check

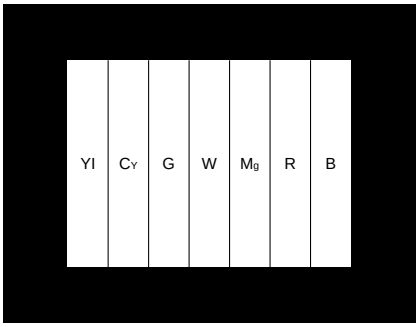


J-6431-920-A	① Jig Board for Service
J-6431-910-A	② IO-164 Harness 8P-10P
J-6431-950-A	③ IO-164 Harness 2P-3P
J-6431-310-A	④ IO-164 Harness 6P



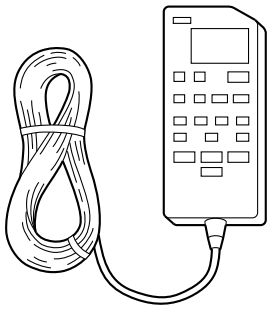
J-6020-250-A	Color Bar Chart

· For color adjustment



J-6082-053-B	Camera Adjustment Commander

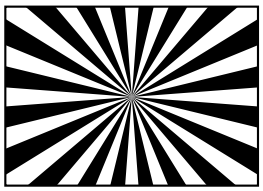
· RM-95 partly converted



Note: If the micro processor IC in the adjusting remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

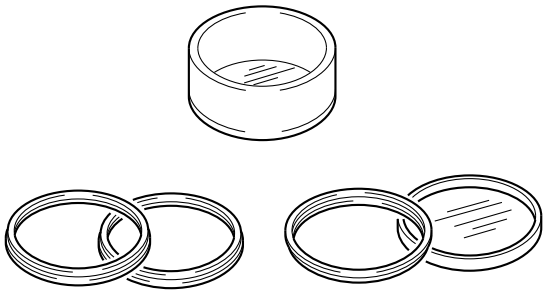
J-6080-875-A	Siemens star

· For checking the flange back



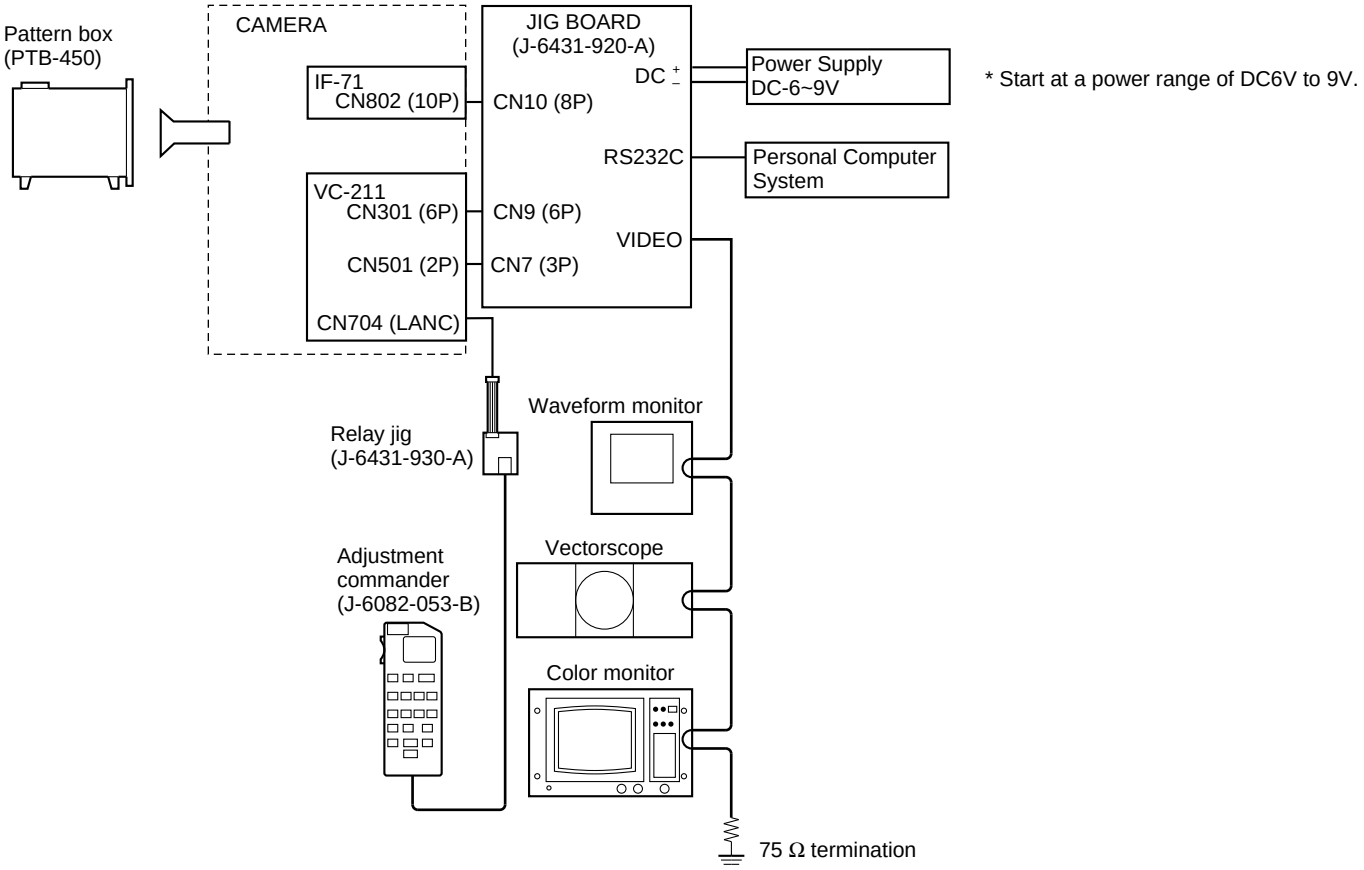
J-6080-058-A	Color Temperature Correction Filter C14

· Auto white balance adjustment
· White balance check



- Oscilloscope
- Frequency Counter
- Digital Voltmeter
- Vectorscope
- Waveform Monitor
- Color Monitor
- Control Software FCB Control Soft (J-6431-940-A)

2-1-2. Connection for Adjustment



* Start at a power range of DC6V to 9V.

2-1-3. Control Software Adjustment

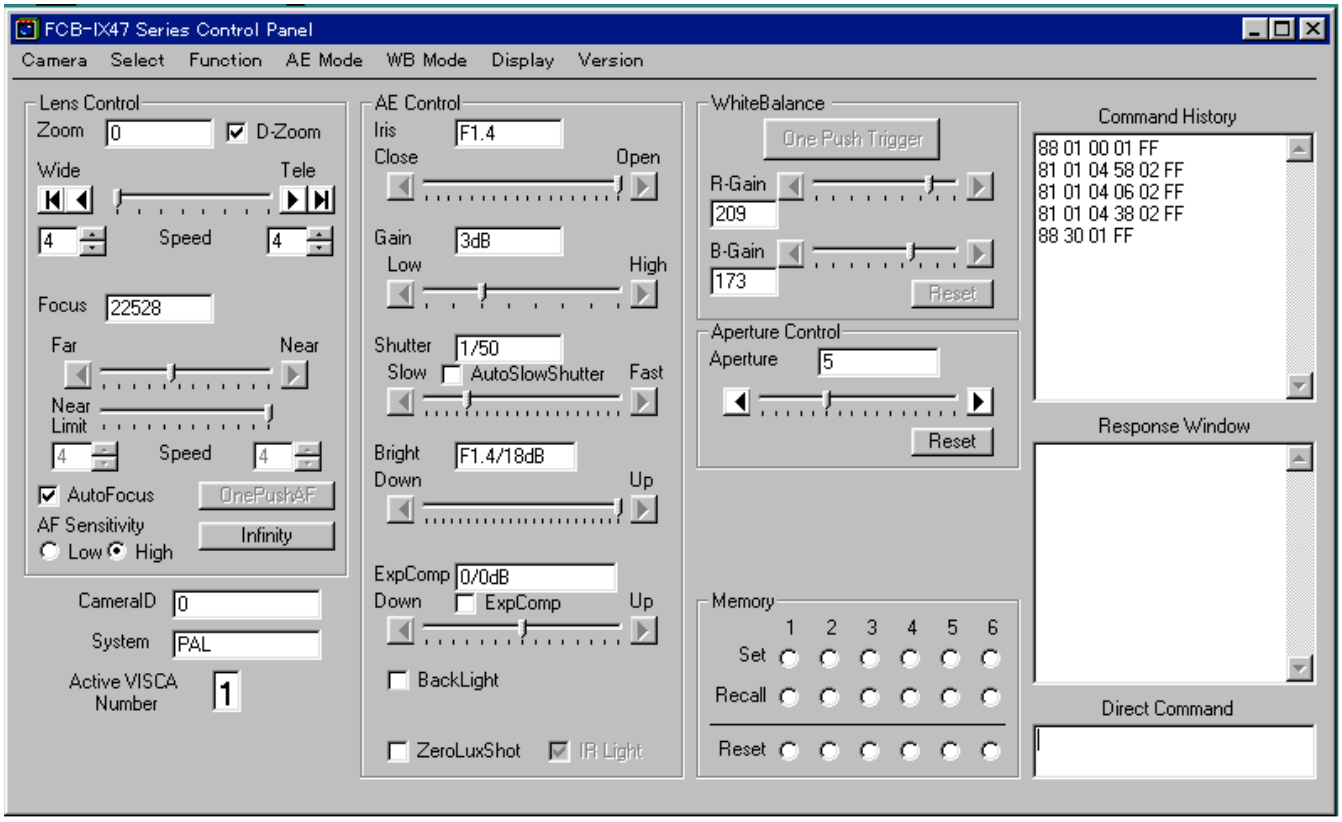
The control system of the camera is adjusted using the software installed in a PC (personal computer).

Name of the software
FCB Control Soft

PC to use
The PC in which Microsoft Windows® NT3.5, 4.0 Windows® 95 operates.

Installation
Double click “setup.exe” from the File manager (Explorer).

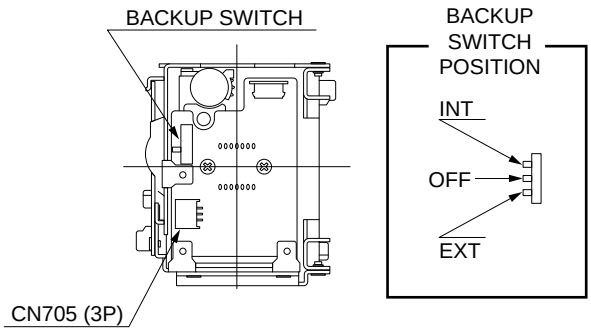
Operation
1. Turn on the power of the camera and start up Windows®.
2. Double click the FCB-IX47 Series Control Panel icon.
3. Perform adjustment by dragging the adjustment slider of the respective adjustment using mouse. You can also perform adjustment by the arrow mark key when you click the adjustment slider with mouse.
4. Click the adjustment software using the finish button of the window.



2-1-4. Precaution

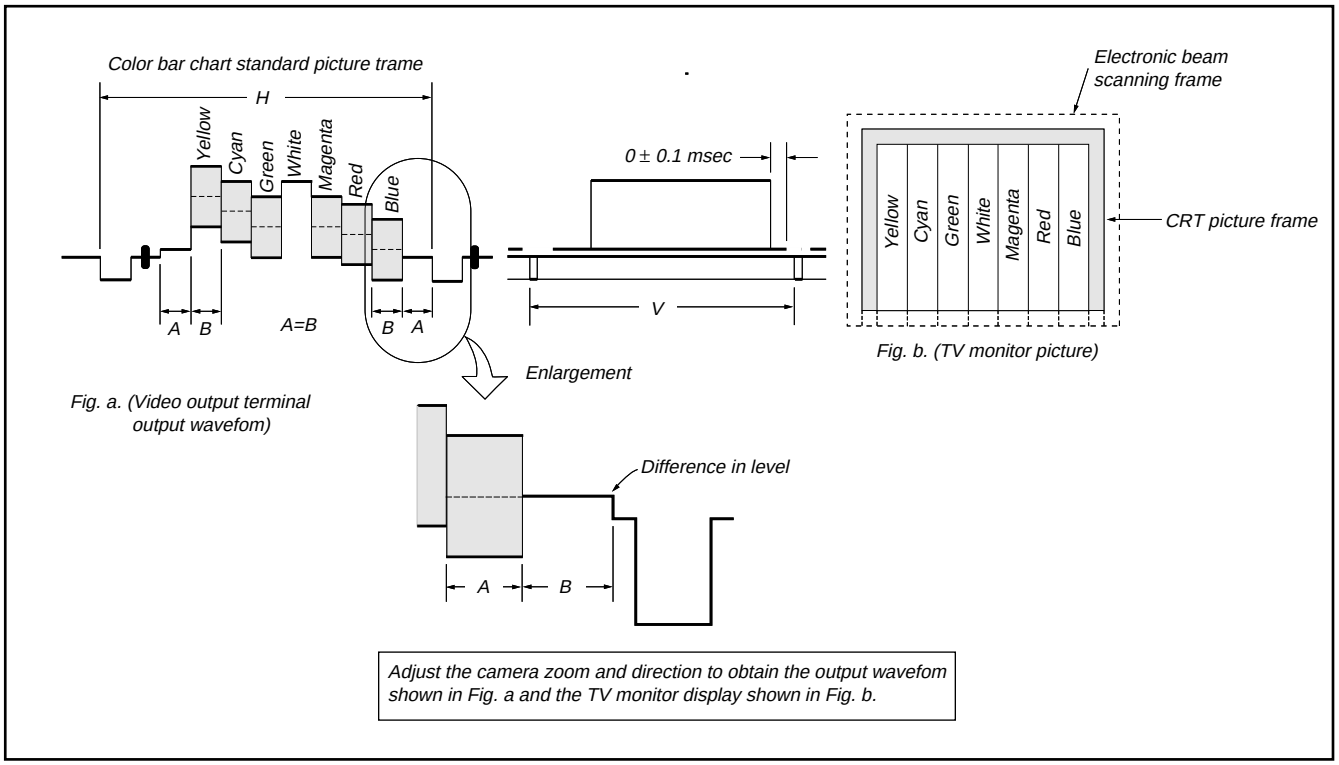
1. Setting the Switch

1) BACK UP SWITCH ..... OFF
2) ZeroLuxShot box at AE Control screen of FCB Control
..... No check required



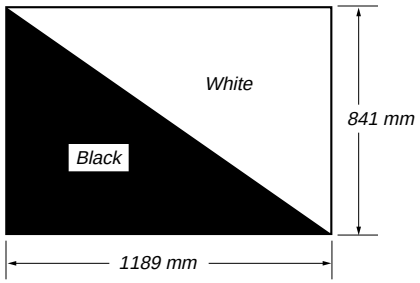
2. Adjusting Procedure

Adjust in the given order.



3. Subject

1) Color bar chart (Standard picture frame)
Adjust the picture frame as shown in figure if adjustments are performed using the color bar chart.
2) White pattern (Standard picture frame)
Remove the color bar chart from the pattern box, and insert a clear chart in its place. (Do not perform zoom operations during this time.)
3) Chart for flange back adjustment
Combine a white A0 size (1189 mm x 841 mm) paper to a black one, and make the chart shown in Figure



Note : Use the non-reflecting and non-glazing vellum paper whose size is more than A0, and make the boundary between white and black to be smoothly flat.

http://getMANUAL.com

2-1-5. Adjusting Remote Commander

The adjusting remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjusting remote commander performs bi-directional communication with the unit. The resultant data of this bi-directional communication is written in the non-volatile memory.

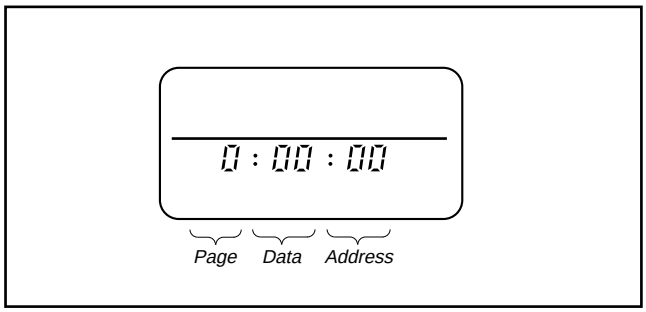
1. Using the adjusting remote commander

1) Connect the adjusting remote commander to the LANC terminal (VC-211 board CN704) with Adjustment Commander Relay Jig.

(Note) The Relay Jig will have Pin ① coincide with Pin ① of the CN704.

2) Adjust the HOLD switch of the adjusting remote commander to "HOLD" (SERVICE position).

If it has been properly connected, the LCD on the adjusting remote commander will display as shown in Figure.



3) Operate the adjusting remote commander as follows.
   - Changing the page
     The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH– button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LCD Display	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal notation conversion value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

   - Changing the address
     The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.
   - Changing the data (Data setting)
     The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed.
     There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data
     The PAUSE button must be pressed to write the adjustment data (D, E, F page) in the nonvolatile memory.
     (The new adjustment data will not be recorded in the nonvolatile memory if this step is not performed.)

4) Select page: 0, address: 01, and set the data to 01, and enables Page D and E, F to be adjusted.

5) After completing all adjustments, set data: 00 to page: 0, address: 01 and turn off the main power supply (8.4V) once.

2. Precautions upon using the adjusting remote commander

Mishandling of the adjusting remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

2-1-6. Data Processing

The calculation of the DDS display and the adjusting remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Table indicates the hexadecimal notation-the decimal notation calculation table.

Hexadecimal notation-Decimal notation

② ↓

The lower digits of the hexadecimal notation / The upper digits of the hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
①→ B (b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: ( ) indicate the adjusting remote commander display.

(Example) In the case that the DDS display and the adjusting remote commander display are BD (bd).
As the upper digit of the hexadecimal notation is B (b), and the lower digit is D (d), the intersection "189" of the ① and ② in the above table is the decimal notation to be calculated.

2-2. INITIALIZATION OF D, E, F PAGE DATA

1. Initializing the D,E,F Page Data

Note 1: If "Initializing the D, E, F Page Data" is performed, all data of the D page, E page and F page will be initialized. (It is impossible to initialize a single page.)

Note 2: If the D,E,F page data has been initialized, "Modification of D, E, F Page Data" and all adjustments need to be performed again.

Note 3: < > : NTSC model (FCB-IX47/470)
[ ] : PAL model (FCB-IX47P/470P)

Adjusting page	D
Adjusting Address	00 to 6F
Adjusting page	F
Adjusting Address	00 to FF
Adjusting page	E
Adjusting Address	00 to FF

Initializing Method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 00, and set data: 55 <NTSC> or data : 51 [PAL].
3) Select page: 2, address: 01, set data: 55<NTSC> or data : 51 [PAL], and press the PAUSE button of the adjusting remote commander.
4) Select page: 2, address: 02, and check that the data is 01.
5) Select page: 3, address: 00, and set data: 29.
6) Select page: 3, address: 01, set data: 29, and press the PAUSE button of the adjusting remote commander.
7) Select page: 0, address: 01, and set data: 00.
8) Perform "Modification of D,E,F Page Data".

2. Modification of D, E, F Page Data

If the D, E, F page data has been initialized, change the data of the "Fixed data-2" address shown in the following tables by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.

Note : If copy the data built in the different model, the camcorder may not operate.

3) When changing the data, press the PAUSE button of the adjusting remote commander each time when setting new data to write the data in the non-volatile memory.
4) Check that the data of adjustment addresses is the initial value. If not, change the data to the inital value.
5) After compleating "Modification of D, E, F Paga Data" select page: 0, address: 01, and set data: 00. Also perform all adjustments.

3. D Page Table

Note1 :

Fixed data-1 : Initialized data.
(Refer to “1. Initializing the D,E,F Page Data”.)
Fixed data-2 : Modified data.
(Refer to “2. Modification of D, E, F Page Data”).

Address	Initial Value		Remark
	NTSC	PAL	
00 to 0F			
10	00	00	Fixed data-1 (Initialized data)
11	00	00	
12	00	00	
13			Fixed data-2 (Modified data, copy the data built in the same model.)
14			
15			
16			
17			
18			
19			
1A			
1B			
1C			
1D			
1E			
1F			
20			
21			
22			Fixed data-1 (Initialized data)
23			
24			
25			
26			
27			
28			
29			
2A			Fixed data-2 (Modified data, copy the data built in the same model.)
2B			
2C			
2D			Fixed data-1 (Initialized data)
2E			
2F			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
3A			
3B			
3C			
3D			
3E			
3F			

Address	Initial Value		Remark
	NTSC	PAL	
40			Fixed data-2 (Modified data, copy the data built in the same model.)
41			
42			
43			
44			
45			
46			Fixed data-1 (Initialized data)
47			
48			
49			
4A			
4B			
4C			
4D			
4E			
4F			
50			Fixed data-2 (Modified data, copy the data built in the same model.)
51			
52			
53			
54			
55			
56			
57			
58			
59			
5A			
5B			
5C			
5D			
5E			
5F			
60			Fixed data-1 (Initialized data)
61			
62			
63			
64			
65			
66			
67			
68			
69			
6A			
6B			
6C			
6D			
6E			
6F			

4. F Page table

Note 1:

Fixed data-1 : Initialized data.
(Refer to “1. Initializing the D,E,F Page Data”.)

Fixed data-2 : Modified data.
(Refer to “2. Modification of D, E, F Page Data”).

Note 2: NTSC model : FCB-IX47/470
PAL model : FCB-IX47P/470P

Address	Initial Value		Remark
	NTSC	PAL	
00 to 0F			
10	00	00	Emergency memory address
11	00	00	
12	00	00	
13	00	00	
14	00	00	
15	00	00	
16	00	00	
17	00	00	
18	00	00	
19	00	00	
1A	00	00	
1B	00	00	
1C			Fixed data-2
1D			
1E			
1F			
20			
21	52	52	G-CAM flip adj.
22			Fixed data-2
23			
24			Fixed data-1
25			(Color reproduction adj.)
26			Fixed data-2
27			
28			
29			Fixed data-1
2A			
2B			
2C	A0	A0	28MHz origin osc. adj.
2D			Fixed data-1
2E			
2F	80	80	Hall adj.
30	80	80	
31	08	08	Max gain adj.
32			Fixed data-2
33			Fixed data-1
34	1B	1B	Color reproduction adj.
35			Fixed data-1
36	42	42	Color reproduction adj.
37			Fixed data-1
38			
39			
3A	89	89	Auto white balance adj.
3B	59	59	
3C	38	38	IRIS IN/OUT adj.
3D	41	41	
3E	25	25	Flange back adj.
3F	00	00	
40	19	19	
41	00	00	
42	35	35	
43			Fixed data-2
44			
45			Fixed data-1
46			
47			
48			
49	6B	6B	Y OUT level adj.
4A			Fixed data-1
4B	9A	9A	C OUT level adj.
4C			Fixed data-1
4D			
4E			
4F			
50			Fixed data-2
51			Fixed data-1
52			
53			
54			
55			
56			
57			
58			
59			
5A			
5B			
5C			
5D			
5E			
5F			
60			
61			
62			
63			
64			
65			
66			
67			
68			
69			
6A			Fixed data-2
6B			Fixed data-1
6C			
6D			
6E			
6F			
70	3B	3B	AWB standard data input adj.
71	FF	FF	
72	56	56	
73	7D	7D	
74			Fixed data-1
75			

Address	Initial Value		Remark
	NTSC	PAL	
76	1B	1B	Flange back adj.
77	54	54	
78	25	25	
79	80	80	
7A	10	10	
7B	FF	FF	
7C			Fixed data-1
7D			
7E			
7F			
80			Fixed data-2
81			
82			Fixed data-1
83			
84			Fixed data-2
85			Fixed data-1
86			Fixed data-2
87			Fixed data-1
88			
89			
8A			
8B			
8C			
8D			Fixed data-2
8E			
8F			Fixed data-1
90			
91			
92			
93			
94			
95			
96			
97			
98			
99			
9A			
9B			
9C			
9D			
9E			
9F			
A0			
A1			
A2			
A3			
A4			
A5			
A6			
A7			
A8			
A9			
AA			
AB			
AC			
AD			
AE			
AF			

Address	Initial Value		Remark
	NTSC	PAL	
B0			Fixed data-1
B1			
B2			
B3			
B4			
B5			
B6			
B7			
B8			
B9			
BA			
BB			
BC			
BD			
BE			
BF			
C0			
C1			
C2			
C3			
C4			
C5			
C6			
C7			
C8			
C9			
CA			
CB			
CC			
CD			
CE			
CF			
D0			
D1			
D2			
D3			
D4			
D5			
D6			
D7			
D8			
D9			Fixed data-2
DA			Fixed data-1
DB			
DC			Fixed data-2
DD			Fixed data-1
DE			
DF			
E0			
E1			
E2			
E3			Fixed data-2
E4			
E5			Fixed data-1
E6			Fixed data-2
E7			Fixed data-1
E8			
E9			

Address	Initial Value		Remark
	NTSC	PAL	
EA			Fixed data-1
EB			
EC			Fixed data-2
ED			Fixed data-1
EE			
EF			
F0			
F1			
F2			Fixed data-2
F3			Fixed data-1
F4			
F5	FE	FE	Color reproduction adj.
F6	F9	F9	
F7			Fixed data-2
F8			
F9			Fixed data-1
FA			
FB			
FC			
FD			
FE			
FF			

5. E Page Table

Note 1:

Fixed data-1 : Initialized data.
(Refer to “1. Initializing the D,E,F Page Data”.)

Fixed data-2 : Modified data.
(Refer to “2. Modification of D, E, F Page Data”).

Address	Initial Value		Remark
	NTSC	PAL	
00			Fixed data-1
01			
02			
03			
04			
05			
06			
07			
08			
09			
0A			Fixed data-2
0B			
0C			Fixed data-1
0D			
0E			Fixed data-2
0F			Fixed data-1
10			
11			
12			
13			
14			Fixed data-2
15			Fixed data-1
16			
17			
18			
19			
1A			
1B			
1C			
1D			
1E			Fixed data-2
1F			Fixed data-1
20			
21			
22			
23			
24			
25			
26			Fixed data-2
27			Fixed data-1
28			
29			
2A			
2B			Fixed data-2
2C			
2D			
2E			
2F			Fixed data-1

Address	Initial Value		Remark
	NTSC	PAL	
30			Fixed data-1
31			
32			
33			
34			
35			
36			
37			
38			Fixed data-2
39			
3A			
3B			Fixed data-1
3C			
3D			
3E			
3F			
40			
41			
42			
43			
44			
45			
46			
47			
48			
49			
4A			
4B			
4C			
4D			
4E			
4F			Fixed data-2
50			Fixed data-1
51			
52			
53			
54			
55			
56			
57			
58			
59			
5A			
5B			
5C			
5D			
5E			
5F			
60			
61			
62			
63			
64			
65			
66			
67			
68			
69			

Address	Initial Value		Remark
	NTSC	PAL	
6A			Fixed data-1
6B			
6C			
6D			
6E			
6F			
70			
71			
72			
73			
74			
75			
76 to 99			
9A			
9B			
9C			
9D			
9E			
9F			
A0			
A1			
A2			
A3			
A4			
A5			
A6			
A7			
A8			
A9			
AA			
AB			
AC			
AD			
AE			
AF			
B0			Fixed data-2
B1			
B2			
B3			
B4			
B5			
B6			
B7			Fixed data-1
B8			Fixed data-2
B9			
BA			
BB			
BC			
BD			
BE			
BF			
C0			
C1			
C2			
C3			
C4			
C5			Fixed data-1
C6			

Address	Initial Value		Remark
	NTSC	PAL	
C7			Fixed data-2
C8			
C9			
CA			
CB			
CC			
CD			Fixed data-1
CE			
CF			
D0			Fixed data-2
D1			Fixed data-1
D2			
D3			
D4			
D5			
D6			
D7			
D8			
D9			
DA			
DB			
DC			
DD			
DE			
DF			
E0			
E1			
E2			
E3			
E4			
E5			Fixed data-2
E6			Fixed data-1
E7			
E8			
E9			
EA			
EB			
EC			
ED			
EE			
EF			
F0			
F1			
F2			
F3			Fixed data-2
F4			Fixed data-1
F5			
F6			
F7			
F8			
F9			
FA			
FB			
FC to FF			

2-3. CAMERA ADJUSTMENTS

1. 28 MHz Origin Oscillation Adjustment (VC-211 board)

Set the frequency of the clock for synchronization.
If deviated, the synchronization will be disrupted and the color will become inconsistent.

Subject	Not required
Measurement Point	Pin ⑫ of IC101
Measuring Instrument	Frequency counter
Adjustment Page	F
Adjustment Address	2C
Specified Value	Pin ⑫ of IC101 : f=14.318181MHz±68Hz (NTSC) f=14.187500MHz±68Hz (PAL)

Note 1: NTSC MODEL: FCB-IX47/470
PAL MODEL: FCB-IX47P/470P

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 2C, change the data and set the clock frequency(f) to the specified value.
3) Press the PAUSE button of the adjusting remote commander.
4) Select page: 0, address: 01, and set data: 00.

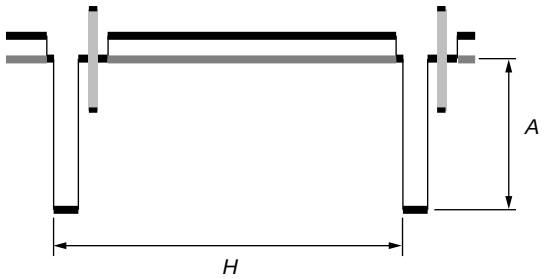
2. SYNC Level Adjustment (VC-211 board)

Set the Y signal output level.

Subject	All black
Measurement Point	Pin ⑥ of CN301
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	49
Specified Value	A = 286±5mV (NTSC) A = 300±5mV (PAL)

Note: Terminate at 75Ω resistor and measure.

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 49, change the data and set the SYNC level (A) to the specified value.
3) Press the PAUSE button of the adjusting remote commander.
4) Select page: 0, address: 01, and set data: 00.



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3. BURST Level Adjustment (VC-211 board)

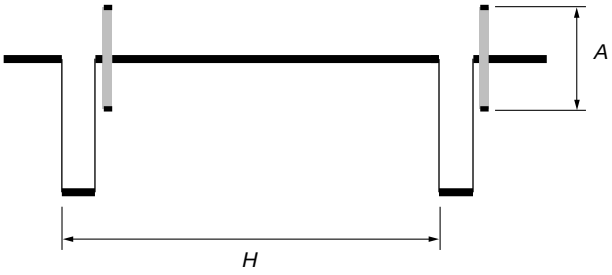
Set the chroma signal output level.

Subject	All black
Measurement Point	Pin ⑥ of CN301
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	4B
Specified Value	A = 286±5mV (NTSC) A = 300±5mV (PAL)

Note: Terminate at 75Ω resistor and measure.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 4B, change the data and set the burst level (A) to the specified value.
3) Press the PAUSE button of the adjusting remote commander.
4) Select page: 0, address: 01, and set data: 00.



4. G-CAM flip Adjustment

Set the color reproduction conditions to optimum.

Subject	Not required
Measurement Point	Display data of page 1 of the adjusting remote commander (Note 1)
Measuring Instrument	
Adjustment Page	F
Adjustment Address	21
Specified Value	S1≧S2

Note 1. Displayed data of page 1 of the adjusting remote commander.

1 : XX : XX
→ S2
→ S1

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 0, address: 03, and set data: 16.
3) Select page 1 of the adjusting remote commander, and compare the higher 2 digits (S1) and lower 2 digits (S2) of the 4-degits display data.
   When S1<S2
   Perform steps 5) onwards.
   When S1≧S2
   Perform steps “Processing after Completing Adjustments”.
4) Select page: F, address: 21, set data: 52, and press the PAUSE button of the adjusting remote commander.

Before Modify data	After Modified data
52	D2
D2	52

5) Select page: 0, address: 03, and set data: 00.
6) Select page: 0, address: 01, and set data: 00.

5. HALL Adjustment

For detecting the position of the lens iris, adjust the hall AMP gain and offset.

Subject	Not required
Measurement Point	DDS display data of TV monitor (Note 3)
Measuring Instrument	
Adjustment Page	F
Adjustment Address	2F, 30
Specified Value	90 to 94 during IRIS OPEN (Note 1) 19 to 1D during IRIS CLOSE (Note 2)

Note 1: Select page: 2, address: 01, set data: 01, and press the PAUSE button of the adjusting remote commander.

Note 2: Select page: 2, address: 01, set data: 03, and press the PAUSE button of the adjusting remote commander.

Note 3: DDS display data of TV monitor.

00 00XX → Object data

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 0, address: 03, and set data: 03.
3) Select page: D, address: 11, set data: 02, and press the PAUSE button of the adjusting remote commander.
4) Select page: 2, address: 01, set data: 03, and press the PAUSE button.
5) Select page: F, address: 30, set data: 80, and press the PAUSE button.
6) Select page: F, address: 2F, set data: 40, and press the PAUSE button.
7) Read the DDS display data (the bottom two digits of the display data at the bottom right of the TV monitor), and this data is named K_2.
8) Select page: F, address: 2F, set data: 30, and press the PAUSE button.
9) Read the DDS display data, and this data is named K_1.
10) Select page: 2, address: 01, set data: 01, and press the PAUSE button.
11) Read the DDS display data, and this data is named W_1.
12) Select page: F, address: 2F, set data: 40, and press the PAUSE button.
13) Read the DDS display data, and this data is named W_2.
14) Convert W_1, W_2, K_1, K_2, to decimal notation, and obtain W_1' , W_2' , K_1' , K_2'. (Refer to Table 5-1-2. “Hexadecimal notation - decimal notation conversion table”.)
15) Calculate X_1' using the following equations (decimal notation calculation).

$A' = W_2' + K_1' - W_1' - K_2'$ Equation 1

$B' = W_1' - K_1'$ Equation 2

$X_1' = [1904 + (48 \times A') - (16 \times B')] / A'$ Equation 3

16) Convert X_1' to hexadecimal notation, and obtain X_1. (Round off to one decimal place)
17) Select page: F, address: 2F, set data: X_1, and press the PAUSE button.
18) Select page: 2, address: 01, and set data: 01, and press the PAUSE button.
19) Select page: F, address: 30, change the data and adjust the DDS display data to “92”.
20) Press the PAUSE button of the adjusting remote commander.
21) Select page: 2, address: 01, and set data: 03, and press the PAUSE button.
22) Read the DDS display data, and this data is named K_0. If K_0 lies within the “19” to “1D” range, perform “Processing after completing adjustments”. If it is lies outside the range, perform the following adjustments.
23) Convert K_0 to decimal notation, and obtain K_0'.
24) Calculate X_2' using the following equations (decimal notation calculation).

$C' = 146 - B' - K_0'$ Equation 4

$X_2' = [(119 - B') \times (X_1' - 48) + (48 \times C')] / C'$ Equation 5

(X_1' and B' are values obtained from equations 2) and 3))

25) Convert X_2' to hexadecimal notation, and obtain X_2. (Round off to one decimal place)
26) Select page: F, address: 2F, set data: X_2, and press the PAUSE button.
27) Select page: 2, address: 01, set data: 03, and press the PAUSE button.
28) Select page: F, address: 30, change the data and adjust the DDS display data to “1B”.
29) Press the PAUSE button of the adjusting remote commander.
30) Select page: 2, address: 01, set data: 01, and press the PAUSE button.
31) Check the DDS display data lies within the “90” to “94” range.

Processing after Completing Adjustments

1) Select page: D, address: 11, and set data: 00, and press the PAUSE button.
2) Select page: 0, address: 01, and set data: 00.
3) Select page: 2, address: 01, and set data: 00, and press the PAUSE button.
4) Select page: 0, address: 03, and set data: 00.

6. Flange Back Adjustment

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

6-1. Flange Back Adjustment(1)

Subject	Flange back adjustment chart (2.0 m from the front of the lens) (Luminance: 300 ± 50 lux)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	3E to 42, 76 to 7B

Adjusting method:

1) Check that at both the zoom lens TELE end and WIDE end, the center of the chart for the flange back adjustment and center of the exposure screen coincide.
2) Select page: 0, address: 01, and set data: 01.
3) Check that the data of page: F, address: 3E to 42, 76 to 7B is the initial value (See table below).

Address	Data	Address	Data
3E	25	77	54
3F	00	78	25
40	19	79	80
41	00	7A	10
42	35	7B	FF
76	1B		

4) Select page: 2, address: 02, and check that the data is “00”.
5) Select page: 2, address: 01, set data: 13, and press the PAUSE button of the adjusting remote commander.
6) Select page: 2, address: 01, set data: 15, and press the PAUSE button of the adjusting remote commander.
   (The adjustment data will be automatically input to page: F, addresses: 3E to 42, 76 to 7B.)
7) Select page: 2, address: 02, and check that the data is “01”.

Processing after Completing Adjustments

1) Turn OFF the main power supply.
2) Perform “Flange Adjustment (2)”.

6-2. Flange Back Adjustment (2)

Perform this adjustment after performing “Flange Back Adjustment (1)”.

Subject	Subject more than 500m away (Subjects with clear contrast such as buildings, etc.)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	3E to 42, 76 to 7B

Adjusting method:

1) Set the zoom lens to the TELE end and expose a subject that is more than 500 m away (subject with clear contrast such as building, etc.). (Nearby subjects less than 500 m away should not be in the screen.)
2) Select page: 0, address: 01, and set data: 01.
3) Select page: 2, address: 02, and check that the data is “00”.
4) Select page: 2, address: 01, set data: 13, and press the PAUSE button of the adjusting remote commander.
5) Place a ND filter on the lens so that the optimum image is obtain.
6) Select page: 2, address: 01, set data: 29, and press the PAUSE button of the adjusting remote commander.
   (The adjustment data will be automatically input to page: F, addresses: 3E to 42, 76 to 7B.)
7) Select page: 2, address: 02, and check that the data is “01”.

Processing after Completing Adjustments

1) Select page: 0, address: 01, and set data: 00.
2) Turn OFF the main power supply.
3) Perform “Flange Back Check”.

7. Flange Back Check

Subject	Siemens star (2.0 m from the front of the lens) (Luminance: approx. 200 lux)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Specified Value	Focused at TELE end and WIDE end.

Note 1: When the auto focus is ON, the lens can be checked if it is focused or not by observing the data on the page 1 of the adjusting remote commander.

1) Select page: 0, address: 03, and set data: 0F.
2) Page 1 shows the state of the focus.

1 : 00 : XX → Odd: Focused
Even: Unfocused

Checking method:

1) Place the Siemens star 2.0m from the front of the lens.
2) To open the IRIS, decrease the luminous intensity to the Siemens star up to a point before noise appear on the image.
3) Select page: 2, address: 40, and set data: 02.
4) Select page: 2, address: 41, and set data: 01.
5) Shoot the Siemens star with the zoom TELE end.
6) Turn on the auto focus.
7) Check that the lens is focused (Note1).
8) Select page: 2, address: 21, and set data: 10.
9) Shoot the Siemens star with the zoom WIDE end.
10) Observe the TV monitor and check that the lens is focused.

Processing after Completing Adjustments

1) Select page: 2, address: 21, and set data: 00.
2) Select page: 0, address: 03, and set data: 00.
3) Select page: 2, address: 40, and set data: 00.
4) Select page: 2, address: 41, and set data: 00.

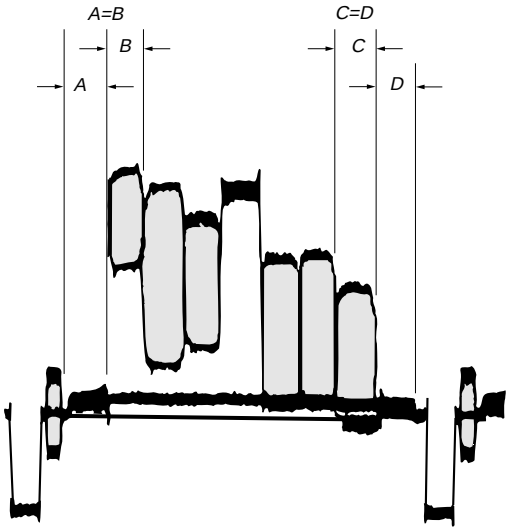
8. Picture Frame Setting

Subject	Color bar chart standard picture frame (1.5m from the front of the lens)
Measurement Point	Pin ⑥ of CN301
Measuring Instrument	Oscilloscope and TV monitor
Specified Value	A=B, C=D, t=0 ± 0.1msec

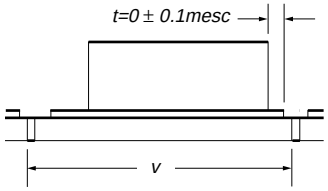
Setting method:

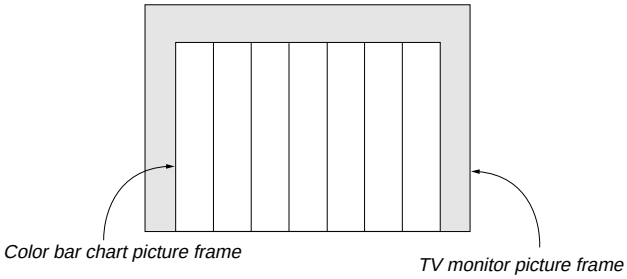
1) Adjust the zoom and the camera direction, and set to the specified position.
2) Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustments using “Color bar chart standard picture frame”.

1. Horizontal period



2. Vertical period





9. Color Reproduction Adjustment

Adjust the color Separation matrix coefficient so that proper color reproduction is produced.

Subject	Color bar chart standard picture frame
Measurement Point	Pin ⑥ of CN301
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	34, 36, F5, F6
Specified Value	All color luminance points should settle within each color reproduction frame. (Last page of this manual)

Note1: NTSC model: FCB-IX47/470
PAL model: FCB-IX47P/470P

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 01, set data: 3D, and press the PAUSE button of the adjusting remote commander.
3) Select page: F, address: 25, set data: 3F, and press the PAUSE button of the adjusting remote commander.
4) Adjust the GAIN and PHASE of the vectorscope, and adjust the burst luminance point to the burst position of the color reproduction frame.
5) Change the data of page: F, address: 34, 36, F5 and F6, and settle each color luminance point in each color reproduction frame.

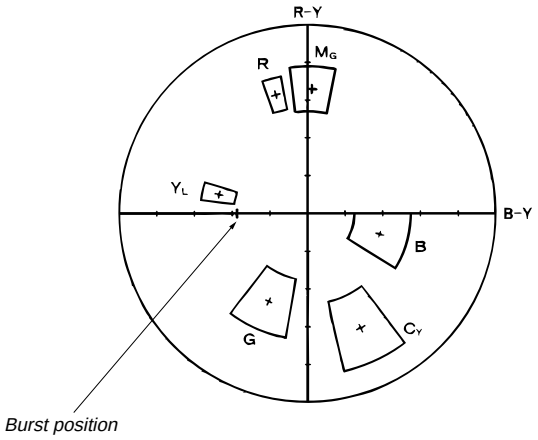
Note 2: Be sure to press the PAUSE button of the adjusting remote commander before changing the of addresses. If not, the new data will not be written to the memory.

6) Press the PAUSE button of the adjusting remote commander.

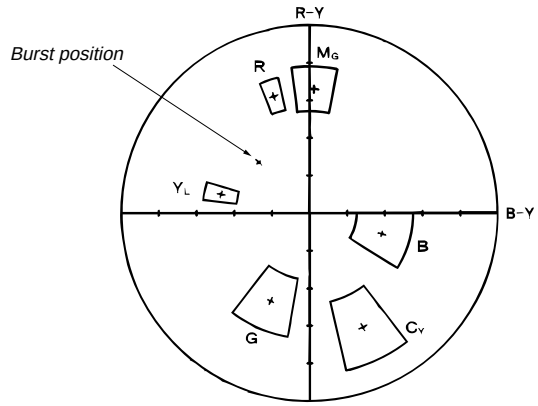
Processing after Completing Adjustments

1) Select page: 2, address: 01, and set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 0, address: 01, and set data: 00.

For NTSC model



For PAL model



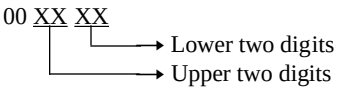
10. IRIS IN/OUT Adjustment

For the unit to judge if the white balance is indoors or outdoors in auto white balance operations, measure the light level and write it in the EEPROM.

If the level is not correct, the white balance will not be accurate.

Subject	Clear chart (Color bar standard picture frame)
Measurement Point	DDS display of TV monitor
Measuring Instrument	(Note 1)
Adjustment Page	F
Adjustment Address	3C, 3D

Note 1: The right four digits of the display data at the right bottom side of TV monitor is the LIGHT LEVEL data.
If the right two digits of the display data changes, regard the data as data: 80.



Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 0, address: 03, and set data: 06.
3) Select page: D, address: 11, and set data: 02, and press the PAUSE button of the adjusting remote commander.
4) Select page: 2, address: 40, and set data: 02.
5) Select page: 2, address: 01, set data: 0B, and press the PAUSE button of the adjusting remote commander.
6) Read the DDS display data (Note 1), and take the upper two digits as D_1 and the lower two as D_2.
7) Convert D_1 to decimal notation, and obtain D_1'. (Refer to page 2-6 “Hexadecimal notation - decimal notation conversion table” of “Service mode”.)
8) Calculate D_3' using the following equations. (Equations 1 and 2 are for decimal notation calculation).
   When $D_2 \geqq D0$
   $D_3' = D_1' - 21$ ..... Equation 1
   When $D_2 < D0$
   $D_3' = D_1' - 22$ ..... Equation 2
9) Convert D_3' to hexadecimal notation, and obtain D_3.
10) Select page: F, address: 3C, set data: D_3, and press the PAUSE button of the adjusting remote commander.
11) Select page: 2, address: 01, set data: 09, and press the PAUSE button of the adjusting remote commander.
12) Read the DDS display data (Note 1), and take the upper two digits as D_4 and the lower two as D_5.
13) Convert D_4 to decimal notation, and obtain D_4'. (Refer to Table 5-1-2. “Hexadecimal notation - decimal notation conversion table”.)
14) Calculate D_6' using the following equations. (Equations 3 and 4 are for decimal notation calculation).
   When $D_5 \geqq F0$
   $D_6' = D_4' - 13$ ..... Equation 3
   When $D_5 < F0$
   $D_6' = D_4' - 14$ ..... Equation 4
15) Convert D_6' to hexadecimal notation, and obtain D_6.
16) Select page: F, address: 3D, set data: D_6, and press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments

1) Select page: D, address: 11, and set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 0, address: 01, and set data: 00.
3) Select page: 2, address: 01, and set data: 00, and press the PAUSE button of the adjusting remote commander.
4) Select page: 2, address: 40, and set data: 00.
5) Select page: 0, address: 03, and set data: 00.

11. MAX GAIN Adjustment

Setting the minimum illumination.
If it is not consistent, the image level required for taking subjects in low illuminance will not be produced (dark).

Subject	Clear chart (Color bar standard picture frame)
Measurement Point	DDS display of TV monitor (Note 1)
Measuring Instrument	
Adjustment Page	F
Adjustment Address	31
Specified Value	A8 to FF

Note 1: The right two digits of the display data at the right bottom side of TV monitor is the object data.

00 XX XX → Object data

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 11, and set data: 02, and press the PAUSE button of the adjusting remote commander.
3) Select of page: 0, address: 03, and set data: 01.
4) Select page: 2, address: 40, and set data: 02.
5) Select page: 2, address: 56, and set data: 40.
6) Select page: 2, address: 01, set data: 19, and press the PAUSE button of the adjusting remote commander.
7) Select page: F, address: 31, set data: 08, and press the PAUSE button of the adjusting remote commander.
8) Check that the DDS display data (Note 1) lies within the specified value.

Processing after Completing Adjustments
1) Select page: D, address: 11, and set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 0, address: 01, and set data: 00.
3) Select page: 2, address: 01, and set data: 00, and press the PAUSE button of the adjusting remote commander.
4) Select page: 2, address: 40, and set data: 00.
5) Select page: 2, address: 56, and set data: 00.
6) Select page: 0, address: 03, and set data: 00.

12. Auto White Balance Standard Data Input

Subject	Clear chart (Color bar standard picture frame)
Adjustment Page	F
Adjustment Address	70 to 73

Note 1: Perform "Color Reproduction Adjustment" before this adjustment.

Note 2: Check that the data of page: 2, address: 02 is 00. If not, turn the power of the unit OFF/ON.

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Wait for 2 seconds.
3) Select page: 2, address: 01, and set data: 11, and press the PAUSE button of the adjusting remote commander.
4) Select page: 2, address: 01, and set data: 0D, and press the PAUSE button of the adjusting remote commander.
   (When the standard data is take in, the data will be automatically input to page: F, address: 70 to 73.)
5) Select page: 2, address: 02, and check that the data is "01".
6) Perform "Auto White Balance Adjustment".

Processing after Completing Adjustments
1) Select page: 2, address: 01, and set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 0, address: 01, and set data: 00.

13. Auto White Balance Adjustment

Adjust to the proper auto white balance output data.
If it is not correct, auto white balance and color reproducibility will be poor.

Subject	Clear chart (Color bar standard picture frame)
Filter	Filter C14 for color temperature correction
Measurement Point	DDS display of TV monitor (Note 2)
Measuring Instrument	
Adjustment Page	F
Adjustment Address	3A, 3B
Specified Value	R ratio: 2B40 to 2BC0 B ratio: 5E40 to 5EC0

Note 1: Perform "Auto White Balance Standard Data Input" before this adjustment.

Note 2: The right two digits of the display data at the right bottom side of TV monitor is the object data.

Adjusting method:

1) Place the C14 filter for color temperature correction on the lens.
2) Select page: 0, address: 01, and set data: 01.
3) Select page: D, address: 11, and set data: 02, and press the PAUSE button of the adjusting remote commander.
4) Select page: 2, address: 01, and set data: 3F, and press the PAUSE button of the adjusting remote commander.
5) Select page: 0, address: 03, and set data: 04.
6) Select page: F, address: 3A, and change the data, and adjust the average value of the DDS display data(Note 2) to the R ratio specified value.
7) Press the PAUSE button of the adjusting remote commander.
8) Select page: 0, address: 03, and set data: 05.
9) Select page: F, address: 3B, and change the data, and adjust the average value of the DDS display data(Note 2) to the B ratio specified value.
10) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments

1) Select page: D, address: 11, and set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 0, address: 01, and set data: 00.
3) Select page: 2, address: 01, and set data: 00, and press the PAUSE button of the adjusting remote commander.
4) Select page: 0, address: 03, and set data: 00.

14. White Balance Check

Subject	Clear chart (Color bar standard picture frame)
Filter	Filter C14 for color temperature correction ND filter 1.0 and 0.3
Measurement Point	Pin ⑥ of CN301
Measuring Instrument	Vectorscope
Specified Value	Figure A to C

Checking method:

1) Check that the lens is not covered with either filter.
2) Select page: 2, address: 01, set data: 0F, and press the PAUSE button of the adjusting remote commander.
3) Check that the center of the white luminance point is within the circle shown FigureA.
4) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
5) Select page: 2, address: 01, set data: 23, and press the PAUSE button of the adjusting remote commander.
6) Place the C14 filter on the lens.
7) Check that the center of the white luminance point settles in the circle shown Figure B.
8) Remove the C14 filter, and place the ND filter 1.3 (1.0 +0.3) on the lens.
9) Check that the white luminance point stopped moving, and then remove the ND filter 1.3.
10) Check that the center of the white luminance point settles within the circle shown Figure C.

Processing after Completing Adjustments

1) Select page: 2, address: 01, and set data: 00, and press the PAUSE button of the adjusting remote commander.

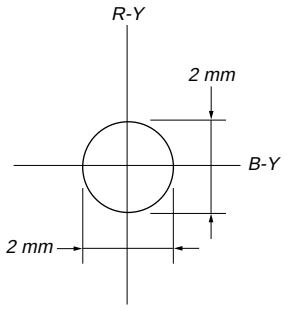


Figure A

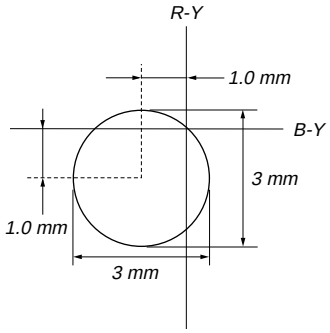


Figure B

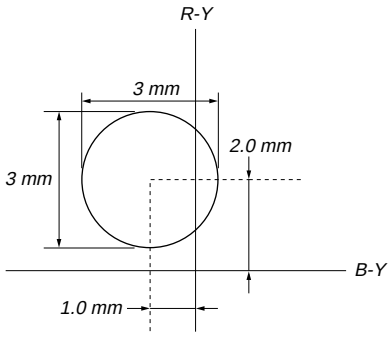


Figure C

http://getMANUAL.com

SECTION 3
SPARE PARTS

3-1. NOTES ON SPARE PARTS

(1) Safety Related Components Warning

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

(2) Standardization of Parts

Repair parts supplied from Sony Parts Center may not be always identical with the parts which actually in use due to “accommodating the improved parts and/or engineering changes” or “standardization of genuine parts”.

This manual's exploded views and electrical spare parts list are indicating the part numbers of “the standardized genuine parts at present” .

(3) Stock of Parts

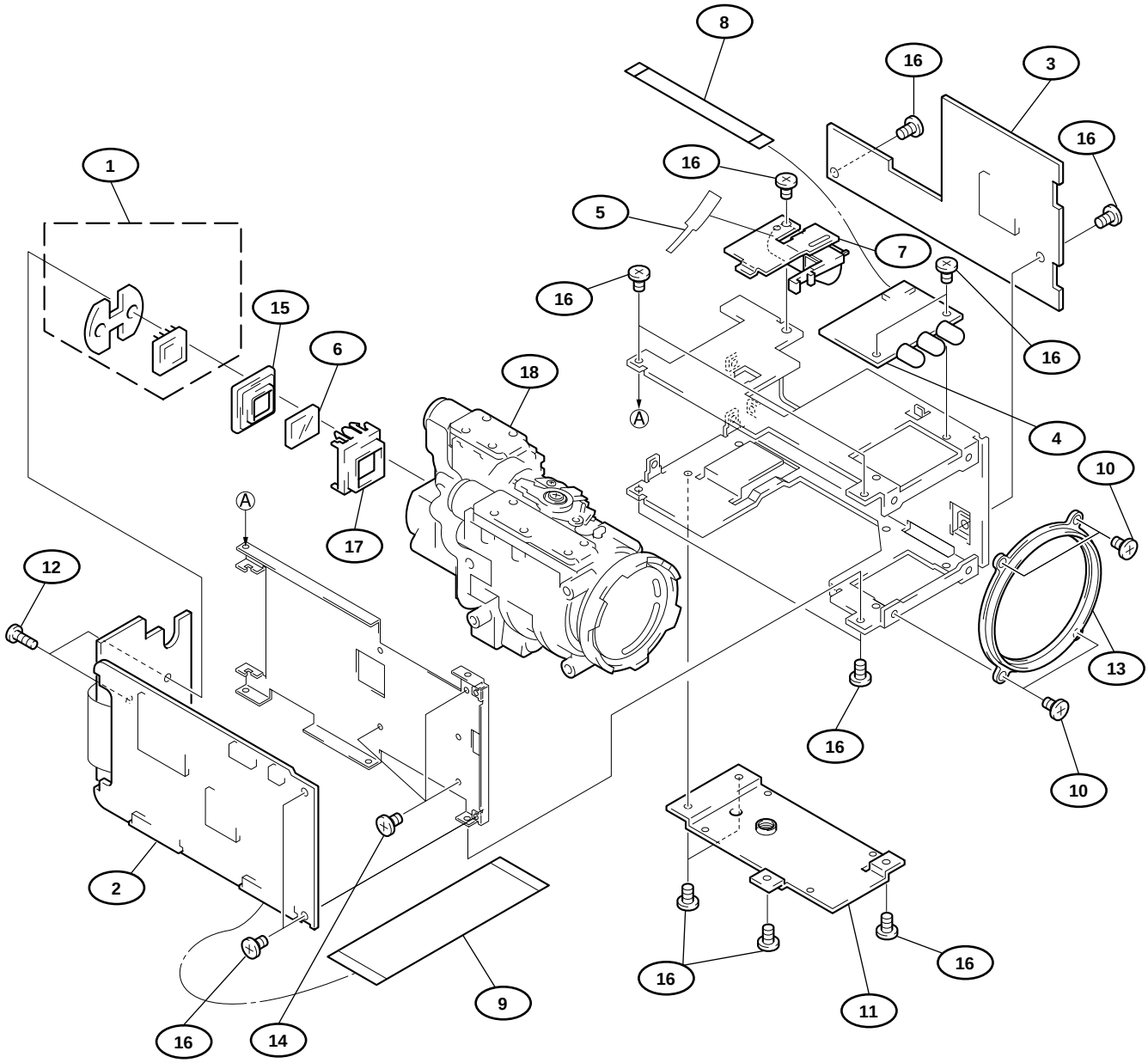
Parts marked with “o” SP (Supply Code) column of the spare parts list are not normally required for routine service work. Orders for parts marked with “o” will be processed, but allow for additional delivery time.

(4) Units for Capacitors, Inductors and Resistors

The following units are assumed in schematic diagrams, electrical parts list and exploded views unless otherwise specified.

Capacitors : μF
Inductors : μH
Resistors : Ω

3-2. EXPLODED VIEWS



No.	Part No.	SP	Description
1	A-7030-865-A	s	CCD BLOCK ASSY (FCB-IX47P/470P)
1	A-7030-891-A	s	CCD BLOCK ASSY (FCB-IX47/470)
2	A-7073-739-A	o	MOUNTED CIRCUIT BOARD, VC-211(NT) (FCB-IX47/470)
2	A-7073-742-A	o	MOUNTED CIRCUIT BOARD, VC-211(PAL) (FCB-IX47P/470P)
3	A-7073-740-A	o	MOUNTED CIRCUIT BOARD, IF-71(IR) (FCB-IX470/470P)
3	A-7073-743-A	o	MOUNTED CIRCUIT BOARD, IF-71(NO) (FCB-IX47/47P)
4	A-7073-741-A	o	MOUNTED CIRCUIT BOARD, IR-32 (FCB-IX470/470P)
5	1-672-209-11	s	FP-64 FLEXIBLE BOARD (FCB-IX470/470P)
6	1-758-084-21	s	FILTER BLOCK, OPTICAL
7	1-763-206-11	s	MOTOR (IR USE) (FCB-IX470/470P)
8	1-790-255-11	s	CABLE, FLEXIBLE FLAT (FFC-262) (FCB-IX470/470P)
9	1-790-256-11	s	CABLE, FLEXIBLE FLAT (FFC-264)
10	3-050-575-11	s	ACE (M2), BIND SCREW LOCK
11	3-051-945-01	s	SHEET METAL, TRIPOD
12	3-318-203-11	s	SCREW (B1.7X6), TAPPING MM
13	3-608-876-02	o	ADAPTOR,FILTER
14	3-948-339-01	s	SCREW, TAPPING MM
15	3-968-054-11	s	RUBBER (FM), SHIELD
16	3-968-729-51	s	SCREW (M2), LOCK ACE, P2 MU
17	3-978-981-11	s	ADAPTOR (FK), CCD FITTING
18	8-848-722-01	s	DEVICE, LENS LSV-600A(SOC) (FCB-IX470/470P)
18	8-848-724-01	s	DEVICE, LENS LSV-600A(SOC) (FCB-IX47/47P)

3-3. ELECTRICAL PARTS LIST

IF-71 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7073-740-A	o	MOUNTED CIRCUIT BOARD, IF-71(IR) (FCB-IX470/470P)
1pc	A-7073-743-A	o	MOUNTED CIRCUIT BOARD, IF-71(NO) (FCB-IX47/47P)
C801	1-164-489-11	s	CERAMIC, CHIP 0.22uF 10% 16V
C802	1-164-489-11	s	CERAMIC, CHIP 0.22uF 10% 16V
C803	1-164-489-11	s	CERAMIC, CHIP 0.22uF 10% 16V
C804	1-164-489-11	s	CERAMIC, CHIP 0.22uF 10% 16V
C805	1-107-826-91	s	CERAMIC 0.1uF 10% 16V
C806	1-107-826-91	s	CERAMIC 0.1uF 10% 16V
C807	1-107-826-91	s	CERAMIC 0.1uF 10% 16V
C808	1-104-847-11	s	TANTALUM, CHIP 22uF 20% 4V
C809	1-104-919-11	s	TANTALUM, CHIP 10uF 20% 25V
C811	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V (FCB-IX470/470P)
C812	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V (FCB-IX470/470P)
C813	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V (FCB-IX470/470P)
C814	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V (FCB-IX470/470P)
C815	1-104-752-11	s	TANTALUM, CHIP 33uF 20% 6.3V (FCB-IX470/470P)
C816	1-115-156-11	s	CERAMIC 1uF 10V (FCB-IX470/470P)
C820	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C821	1-107-826-91	s	CERAMIC 0.1uF 10% 16V
C822	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
CN802	1-695-223-21	s	CONNECTOR 10P, MALE
CN804	1-766-360-21	s	CONNECTOR, FFC/FPC 30P
CN805	1-766-342-21	s	CONNECTOR, FFC/FPC 12P
CN806	1-766-644-21	s	CONNECTOR, FFC/FPC 8P
D801	8-719-404-50	s	DIODE MA111-TX
D802	8-719-404-50	s	DIODE MA111-TX
D803	8-719-404-50	s	DIODE MA111-TX
D804	8-719-404-50	s	DIODE MA111-TX
D805	8-719-018-51	s	DIODE CL-170R-CD-T
FB801	1-414-228-11	s	INDUCTOR CHIP 0UH (FCB-IX470/470P)
FB802	1-414-228-11	s	INDUCTOR CHIP 0UH (FCB-IX470/470P)
IC801	8-759-442-26	s	IC MAX3222CAP-TE2
IC802	8-759-184-64	s	IC TC4W66FU(TE12R)
IC803	8-759-492-31	s	IC MPC17A134VMEL (FCB-IX470/470P)
IC804	8-759-566-99	s	IC HD6433394V06X
IC805	8-759-085-76	s	IC S-81332HG-KC-T1
IC811	8-752-377-38	s	IC CXD2430N-T4 (FCB-IX470/470P)
IC812	8-759-337-40	s	IC NJM2904V(TE2)
L801	1-414-754-11	s	INDUCTOR 10UH
L802	1-414-754-11	s	INDUCTOR 10UH
L805	1-414-398-11	s	INDUCTOR 10UH (FCB-IX470/470P)
Q803	8-729-030-53	s	TRANSISTOR MSD1819A-RT1
Q804	8-729-403-35	s	TRANSISTOR UN5113-TX
R801	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R802	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R805	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R806	1-216-853-11	s	METAL, CHIP 470K 5% 1/16W
R807	1-216-853-11	s	METAL, CHIP 470K 5% 1/16W
R808	1-216-853-11	s	METAL, CHIP 470K 5% 1/16W
R809	1-216-853-11	s	METAL, CHIP 470K 5% 1/16W

(IF-71 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R810	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R811	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R812	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R814	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R821	1-216-826-11	s	METAL, CHIP 2.7K 5% 1/16W
R822	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R826	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R830	1-216-838-11	s	METAL, CHIP 27K 5% 1/16W
R840	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R842	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R843	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R852	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R853	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R854	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R856	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R857	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R858	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R859	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R860	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R861	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R862	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R863	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R864	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R865	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
S801	1-572-078-11	s	SWITCH, TACTILE
S802	1-572-078-11	s	SWITCH, TACTILE
S803	1-572-078-11	s	SWITCH, TACTILE
S804	1-572-078-11	s	SWITCH, TACTILE
S805	1-572-078-11	s	SWITCH, TACTILE
X801	1-767-261-21	s	VIBRATOR, CERAMIC

IR-32 BOARD (FOR FCB-IX470/470P)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7073-741-A	o	MOUNTED CIRCUIT BOARD, IR-32
CN090	1-766-337-21	s	CONNECTOR, FFC/FPC 7P
D090	8-719-992-14	s	DIODE DAL5818
D091	8-719-992-14	s	DIODE DAL5818
D092	8-719-992-14	s	DIODE DAL5818
F090	1-216-295-91	s	METAL, CHIP 0 5% 1/10W
L090	1-414-396-21	s	INDUCTOR 4.7UH
Q090	8-729-140-75	s	TRANSISTOR 2SD999-CLCK
Q091	8-729-140-75	s	TRANSISTOR 2SD999-CLCK
Q092	8-729-140-75	s	TRANSISTOR 2SD999-CLCK
R090	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R091	1-216-162-00	s	RESCHIP 33 5% 1/8W
R092	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R093	1-216-162-00	s	RESCHIP 33 5% 1/8W
R094	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R095	1-216-162-00	s	RESCHIP 33 5% 1/8W
R096	1-216-162-00	s	RESCHIP 33 5% 1/8W
R097	1-216-162-00	s	RESCHIP 33 5% 1/8W
R098	1-216-162-00	s	RESCHIP 33 5% 1/8W

VC-211 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7073-739-A	o	MOUNTED CIRCUIT BOARD, VC-211(NT) (FCB-IX47/470)
1pc	A-7073-742-A	o	MOUNTED CIRCUIT BOARD, VC-211(PAL) (FCB-IX47P/470P)
BT701	1-528-944-11	s	BATTERY, LITHIUM (SECONDARY)
C001	1-113-987-11	s	TANTAL 4.7uF 20% 25V
C003	1-164-156-11	s	CERAMIC, CHIP 0.1uF 25V
C004	1-135-210-11	s	TANTALUM, CHIP 4.7uF 10% 10V
C102	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C104	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C106	1-115-156-11	s	CERAMIC 1uF 10V
C107	1-115-156-11	s	CERAMIC 1uF 10V
C108	1-113-987-11	s	TANTAL 4.7uF 20% 25V
C109	1-104-847-11	s	TANTALUM, CHIP 22uF 20% 4V
C110	1-163-021-91	s	CERAMIC 0.01uF 10% 50V
C111	1-164-505-11	s	CERAMIC, CHIP 2.2uF 16V
C112	1-162-964-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C113	1-162-909-11	s	CERAMIC, CHIP 4PF 0.25PF 50V
C114	1-107-826-91	s	CERAMIC 0.1uF 10% 16V
C115	1-115-467-11	s	CERAMIC 0.22uF 10% 10V
C116	1-162-964-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C117	1-107-826-91	s	CERAMIC 0.1uF 10% 16V
C118	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C119	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C120	1-107-826-91	s	CERAMIC 0.1uF 10% 16V
C121	1-107-826-91	s	CERAMIC 0.1uF 10% 16V
C122	1-162-962-11	s	CERAMIC 470PF 10% 50V
C123	1-107-826-91	s	CERAMIC 0.1uF 10% 16V
C124	1-107-826-91	s	CERAMIC 0.1uF 10% 16V
C125	1-109-982-11	s	CERAMIC 1uF 10% 10V
C126	1-107-826-91	s	CERAMIC 0.1uF 10% 16V
C127	1-107-826-91	s	CERAMIC 0.1uF 10% 16V
C128	1-104-847-11	s	TANTALUM, CHIP 22uF 20% 4V
C201	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C202	1-109-982-11	s	CERAMIC 1uF 10% 10V
C203	1-162-927-11	s	CERAMIC, CHIP 100PF 5% 50V
C204	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C205	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C206	1-135-201-11	s	TANTALUM 10uF 20% 6.3V
C207	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C208	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C211	1-115-156-11	s	CERAMIC 1uF 10V
C212	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C213	1-115-156-11	s	CERAMIC 1uF 10V
C214	1-115-156-11	s	CERAMIC 1uF 10V
C215	1-115-156-11	s	CERAMIC 1uF 10V
C216	1-135-201-11	s	TANTALUM 10uF 20% 6.3V
C301	1-162-920-11	s	CERAMIC, CHIP 27PF 5% 50V
C302	1-162-920-11	s	CERAMIC, CHIP 27PF 5% 50V
C303	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C306	1-135-259-11	s	TANTALUM, CHIP 10uF 20% 6.3V
C307	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C308	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C309	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C310	1-109-982-11	s	CERAMIC 1uF 10% 10V
C311	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C312	1-135-259-11	s	TANTALUM, CHIP 10uF 20% 6.3V
C313	1-109-982-11	s	CERAMIC 1uF 10% 10V
C314	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V

(VC-211 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C315	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C316	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C317	1-113-996-11	s	TANTAL 220uF 20% 4V
C318	1-135-181-21	s	TANTALUM, CHIP 4.7uF 10% 6.3V
C319	1-113-996-11	s	TANTAL 220uF 20% 4V
C320	1-135-181-21	s	TANTALUM, CHIP 4.7uF 10% 6.3V
C321	1-104-847-11	s	TANTALUM, CHIP 22uF 20% 4V
C322	1-162-920-11	s	CERAMIC, CHIP 27PF 5% 50V
C402	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C403	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C404	1-162-968-11	s	CERAMIC, CHIP 0.0047uF 10% 50V
C405	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C406	1-104-851-11	s	TANTALUM, CHIP 10uF 20% 10V
C407	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C408	1-164-156-11	s	CERAMIC, CHIP 0.1uF 25V
C409	1-107-826-91	s	CERAMIC 0.1uF 10% 16V
C410	1-162-962-11	s	CERAMIC 470PF 10% 50V
C411	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C412	1-115-467-11	s	CERAMIC 0.22uF 10% 10V
C413	1-104-752-11	s	TANTALUM, CHIP 33uF 20% 6.3V
C414	1-164-156-11	s	CERAMIC, CHIP 0.1uF 25V
C415	1-162-964-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C416	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C417	1-115-156-11	s	CERAMIC 1uF 10V
C418	1-162-966-11	s	CERAMIC, CHIP 0.0022uF 10% 50V
C420	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C421	1-104-851-11	s	TANTALUM, CHIP 10uF 20% 10V
C422	1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V
C501	1-162-964-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C502	1-162-960-11	s	CERAMIC 220PF 10% 50V
C503	1-107-826-91	s	CERAMIC 0.1uF 10% 16V
C504	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C505	1-107-826-91	s	CERAMIC 0.1uF 10% 16V
C506	1-162-967-11	s	CERAMIC 0.0033uF 10% 50V
C507	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C508	1-162-964-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C509	1-162-964-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C510	1-162-967-11	s	CERAMIC 0.0033uF 10% 50V
C511	1-162-964-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C512	1-104-919-11	s	TANTALUM, CHIP 10uF 20% 25V
C513	1-162-964-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C515	1-162-964-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C516	1-162-964-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C520	1-113-987-11	s	TANTAL 4.7uF 20% 25V
C522	1-115-566-11	s	CERAMIC 4.7uF 10% 10V
C523	1-115-566-11	s	CERAMIC 4.7uF 10% 10V
C524	1-115-566-11	s	CERAMIC 4.7uF 10% 10V
C526	1-135-259-11	s	TANTALUM, CHIP 10uF 20% 6.3V
C527	1-164-506-11	s	CERAMIC 4.7uF 16V
C528	1-164-506-11	s	CERAMIC 4.7uF 16V
C529	1-104-851-11	s	TANTALUM, CHIP 10uF 20% 10V
C531	1-107-826-91	s	CERAMIC 0.1uF 10% 16V
C532	1-113-987-11	s	TANTAL 4.7uF 20% 25V
C533	1-113-985-11	s	TANTAL 10uF 20% 20V
C534	1-107-826-91	s	CERAMIC 0.1uF 10% 16V
C535	1-164-156-11	s	CERAMIC, CHIP 0.1uF 25V
C601	1-109-982-11	s	CERAMIC 1uF 10% 10V
C602	1-162-915-11	s	CERAMIC, CHIP 10PF 0.5PF 50V
C603	1-162-915-11	s	CERAMIC, CHIP 10PF 0.5PF 50V

(VC-211 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C604	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C605	1-164-156-11	s	CERAMIC, CHIP 0.1uF 25V
C606	1-164-156-11	s	CERAMIC, CHIP 0.1uF 25V
C608	1-164-156-11	s	CERAMIC, CHIP 0.1uF 25V
C609	1-164-156-11	s	CERAMIC, CHIP 0.1uF 25V
C630	1-164-156-11	s	CERAMIC, CHIP 0.1uF 25V
C702	1-164-156-11	s	CERAMIC, CHIP 0.1uF 25V
C703	1-104-847-11	s	TANTALUM, CHIP 22uF 20% 4V
C704	1-164-156-11	s	CERAMIC, CHIP 0.1uF 25V
C705	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C706	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C707	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C708	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C709	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C710	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C711	1-162-970-11	s	CERAMIC, CHIP 0.01uF 10% 25V
C712	1-164-156-11	s	CERAMIC, CHIP 0.1uF 25V
C713	1-164-227-11	s	CERAMIC 0.022uF 10% 25V
C714	1-162-919-11	s	CERAMIC, CHIP 22PF 5% 50V
C715	1-162-917-11	s	CERAMIC, CHIP 15PF 5% 50V
C716	1-107-826-91	s	CERAMIC 0.1uF 10% 16V
CN301	1-580-789-21	o	PIN, CONNECTOR (SMD) 6P
CN401	1-766-353-21	s	CONNECTOR, FFC/FPC 23P
CN501	1-580-055-21	o	PIN, CONNECTOR 2P
CN502	1-766-337-21	s	CONNECTOR, FFC/FPC 7P
CN703	1-766-360-21	s	CONNECTOR, FFC/FPC 30P
CN704	1-764-705-11	s	CONNECTOR, FFC/FPC (LIF) 6P
CN705	1-580-056-21	o	PIN, CONNECTOR (SMD) 3P
D101	8-713-103-87	s	DIODE 1T414-01-T8A
D401	8-719-404-50	s	DIODE MA111-TX
D501	8-719-057-68	s	DIODE SBS001C-TB
D502	8-719-057-68	s	DIODE SBS001C-TB
D503	8-719-057-68	s	DIODE SBS001C-TB
D504	8-719-027-77	s	DIODE MA796
D701	8-719-421-27	s	DIODE MA728
D704	8-719-421-27	s	DIODE MA728
F501	1-533-709-11	s	FUSE (SMD)
FB102	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
FB103	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
FB201	1-414-228-11	s	INDUCTOR CHIP 0UH
FB202	1-414-228-11	s	INDUCTOR CHIP 0UH
FB204	1-414-228-11	s	INDUCTOR CHIP 0UH
FB205	1-414-228-11	s	INDUCTOR CHIP 0UH
FB401	1-414-228-11	s	INDUCTOR CHIP 0UH
FL301	1-239-352-11	s	FILTER, LOW PASS
IC101	8-752-384-70	s	IC CXD2486R-T4
IC102	8-759-534-77	s	IC AD9800JDSTRL
IC201	8-759-494-55	s	IC MB87F126DPFF-G-BND
IC202	8-759-494-73	s	IC MB90097PFV-G-104-ER
IC203	8-752-390-53	s	IC CXD3131R-T6
IC301	8-759-426-25	s	IC MB88346LPFV-G-BND-ER
IC302	8-752-055-95	s	IC CXA1409AQ-T4
IC401	8-759-492-31	s	IC MPC17A134VMEL
IC402	8-759-444-87	s	IC NJM324V(TE2)
IC501	8-759-350-29	s	IC SN104213PM-T6
IC502	8-759-259-77	s	IC PQ20VZ5U

(VC-211 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC601	8-759-445-94	s	IC AK6480AM-E2
IC701	8-759-424-79	s	IC S-8423YFS-T2
IC702	8-759-566-88	s	IC S579185PZ-TEB
IC703	8-759-398-90	s	IC S-81236PG-P7-T1
L001	1-414-757-11	s	INDUCTOR 100UH
L101	1-414-398-11	s	INDUCTOR 10UH
L102	1-414-757-11	s	INDUCTOR 100UH
L103	1-414-754-11	s	INDUCTOR 10UH
L201	1-414-754-11	s	INDUCTOR 10UH
L202	1-414-754-11	s	INDUCTOR 10UH
L301	1-414-754-11	s	INDUCTOR 10UH
L302	1-412-959-11	s	INDUCTOR 47UH (FCB-IX47P/470P)
L302	1-412-961-11	s	INDUCTOR 68UH (FCB-IX47/470)
L303	1-414-754-11	s	INDUCTOR 10UH
L304	1-412-959-11	s	INDUCTOR 47UH (FCB-IX47P/470P)
L304	1-412-961-11	s	INDUCTOR 68UH (FCB-IX47/470)
L401	1-414-398-11	s	INDUCTOR 10UH
L402	1-414-754-11	s	INDUCTOR 10UH
L501	1-424-653-11	s	COIL, CHOKE 10uH
L502	1-414-404-11	s	INDUCTOR 100UH
L503	1-424-674-11	s	INDUCTOR 22UH
L504	1-424-674-11	s	INDUCTOR 22UH
L505	1-414-396-21	s	INDUCTOR 4.7UH
L506	1-414-396-21	s	INDUCTOR 4.7UH
L507	1-414-406-11	s	INDUCTOR 220UH
L601	1-414-754-11	s	INDUCTOR 10UH
L701	1-414-754-11	s	INDUCTOR 10UH
LF501	1-416-107-21	s	INDUCTOR 0UH
Q001	8-729-117-73	s	TRANSISTOR 2SC4178-F14
Q201	8-729-037-52	s	TRANSISTOR 2SD2216J-QR(K8).SO
Q202	8-729-037-52	s	TRANSISTOR 2SD2216J-QR(K8).SO
Q301	8-729-030-54	s	TRANSISTOR MSB1218A-RT1
Q302	8-729-030-53	s	TRANSISTOR MSD1819A-RT1
Q401	8-729-037-53	s	TRANSISTOR 2SB1462J-QR(K8).SO
Q402	8-729-037-52	s	TRANSISTOR 2SD2216J-QR(K8).SO
Q403	8-729-037-52	s	TRANSISTOR 2SD2216J-QR(K8).SO
Q501	8-729-804-41	s	TRANSISTOR 2SB1122-S
Q502	8-729-039-86	s	TRANSISTOR FMMT717TA
Q503	8-729-039-86	s	TRANSISTOR FMMT717TA
Q504	8-729-039-86	s	TRANSISTOR FMMT717TA
Q506	8-729-041-24	s	TRANSISTOR NDS355AN
Q507	8-729-030-54	s	TRANSISTOR MSB1218A-RT1
Q508	8-729-402-42	s	TRANSISTOR UN5213
Q509	8-729-030-54	s	TRANSISTOR MSB1218A-RT1
Q510	8-729-030-53	s	TRANSISTOR MSD1819A-RT1
Q511	8-729-030-53	s	TRANSISTOR MSD1819A-RT1
Q512	8-729-403-35	s	TRANSISTOR UN5113-TX
Q513	8-729-030-53	s	TRANSISTOR MSD1819A-RT1
R001	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R101	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R102	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R103	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R104	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R105	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R106	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R107	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R108	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R201	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W

(VC-211 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R202	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R203	1-216-811-11	s	METAL, CHIP 150 5% 1/16W
R204	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R205	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R206	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R207	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R208	1-216-832-11	s	METAL, CHIP 8.2K 5% 1/16W
R209	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W
R210	1-216-811-11	s	METAL, CHIP 150 5% 1/16W
R211	1-216-828-11	s	METAL, CHIP 3.9K 5% 1/16W
R212	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R213	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R214	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R301	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R302	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R303	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W (FCB-IX47P/470P)
R303	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W (FCB-IX47/470)
R304	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R305	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R306	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R307	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R308	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R309	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R310	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R311	1-216-807-11	s	METAL, CHIP 68 5% 1/16W
R312	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R313	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R314	1-216-807-11	s	METAL, CHIP 68 5% 1/16W
R315	1-216-807-11	s	METAL, CHIP 68 5% 1/16W
R316	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W (FCB-IX47P/470P)
R316	1-216-827-11	s	METAL, CHIP 3.3K 5% 1/16W (FCB-IX47/470)
R401	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R402	1-216-843-11	s	METAL, CHIP 68K 5% 1/16W
R403	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R404	1-216-843-11	s	METAL, CHIP 68K 5% 1/16W
R405	1-216-295-91	s	METAL, CHIP 0 5% 1/10W
R406	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R407	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R408	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R409	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R410	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R411	1-216-853-11	s	METAL, CHIP 470K 5% 1/16W
R412	1-216-853-11	s	METAL, CHIP 470K 5% 1/16W
R413	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R414	1-216-835-11	s	METAL, CHIP 15K 5% 1/16W
R415	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R416	1-216-853-11	s	METAL, CHIP 470K 5% 1/16W
R417	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R418	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R419	1-216-815-11	s	METAL, CHIP 330 5% 1/16W
R420	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R421	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R422	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R423	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R501	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R502	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W

(VC-211 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R503	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R504	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R506	1-216-836-11	s	METAL, CHIP 18K 5% 1/16W
R507	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R508	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R509	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R510	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R511	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R512	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R513	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R514	1-216-839-11	s	METAL, CHIP 33K 5% 1/16W
R515	1-216-834-11	s	METAL, CHIP 12K 5% 1/16W
R516	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R521	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R522	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R523	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R524	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R525	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R526	1-218-877-11	s	RESCHIP 18K 0.50% 1/16W
R527	1-218-879-11	s	RESCHIP 22K 0.50% 1/16W
R528	1-218-891-11	s	RESCHIP 68K 0.50% 1/16W
R529	1-216-844-11	s	METAL, CHIP 82K 5% 1/16W
R530	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
R531	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R532	1-218-851-11	s	METAL, CHIP 1.5K 0.50% 1/16W
R533	1-218-874-11	s	METAL, CHIP 13K 0.50% 1/16W
R534	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R535	1-216-824-11	s	METAL, CHIP 1.8K 5% 1/16W
R601	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R602	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R603	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R607	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R608	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R609	1-216-853-11	s	METAL, CHIP 470K 5% 1/16W
R611	1-216-829-11	s	METAL, CHIP 4.7K 5% 1/16W
R613	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R614	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R615	1-216-825-11	s	METAL, CHIP 2.2K 5% 1/16W
R617	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R621	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R623	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R624	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R625	1-216-811-11	s	METAL, CHIP 150 5% 1/16W
R626	1-216-813-11	s	METAL, CHIP 220 5% 1/16W
R627	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R628	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R651	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R654	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R702	1-216-853-11	s	METAL, CHIP 470K 5% 1/16W
R703	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R704	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R705	1-216-809-11	s	METAL, CHIP 100 5% 1/16W
R706	1-216-849-11	s	METAL, CHIP 220K 5% 1/16W
R707	1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R708	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R709	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R710	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R711	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R712	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W

(VC-211 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R713	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R714	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R715	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R716	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R717	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R718	1-216-821-11	s	METAL, CHIP 1K 5% 1/16W
R719	1-216-841-11	s	METAL, CHIP 47K 5% 1/16W
R720	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R721	1-216-853-11	s	METAL, CHIP 470K 5% 1/16W
R722	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R723	1-216-845-11	s	METAL, CHIP 100K 5% 1/16W
R728	1-219-570-11	s	RESCHIP 10M 5% 1/16W
R731	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R732	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R733	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R734	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R735	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R736	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R737	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R738	1-216-833-11	s	METAL, CHIP 10K 5% 1/16W
R739	1-216-853-11	s	METAL, CHIP 470K 5% 1/16W
R740	1-216-806-11	s	METAL, CHIP 56 5% 1/16W
R741	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R742	1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R743	1-216-817-11	s	METAL, CHIP 470 5% 1/16W
R747	1-216-837-11	s	METAL, CHIP 22K 5% 1/16W
S703	1-762-648-21	s	SWITCH, SLIDE
T501	1-426-938-11	s	TRANSFORMER, DC/DC CONVERTER
VDR301	1-801-923-11	s	VARISTOR, CHIP
VDR302	1-801-923-11	s	VARISTOR, CHIP
VDR303	1-801-923-11	s	VARISTOR, CHIP
VDR501	1-801-863-21	s	VARISTOR, CHIP
X101	1-760-321-11	s	VIBRATOR, CRYSTAL (FCB-IX47P/470P)
X101	1-760-320-11	s	VIBRATOR, CRYSTAL (FCB-IX47/470)
X601	1-760-655-41	s	VIBRATOR, CRYSTAL
X701	1-579-907-21	s	VIBRATOR, CERAMIC
X702	1-760-458-21	s	VIBRATOR, CRYSTAL

FRAME

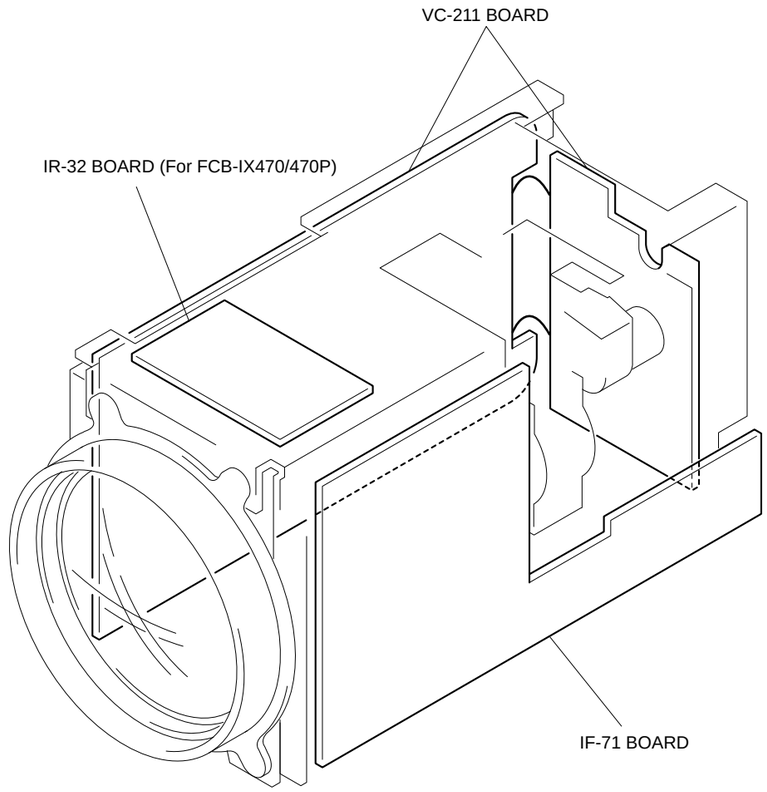
Ref. No. or Q'ty	Part No.	SP	Description
5	1-672-209-11	s	FP-64 FLEXIBLE BOARD
8	1-790-255-11	s	CABLE, FLEXIBLE FLAT (FFC-262) (FCB-IX470/470P)
9	1-790-256-11	s	CABLE, FLEXIBLE FLAT (FFC-264)
M1	1-763-206-11	s	MOTOR (IR USE) (FCB-IX470/470P)

PACKING MATERIALS & SUPPLIED ACCESSORIES

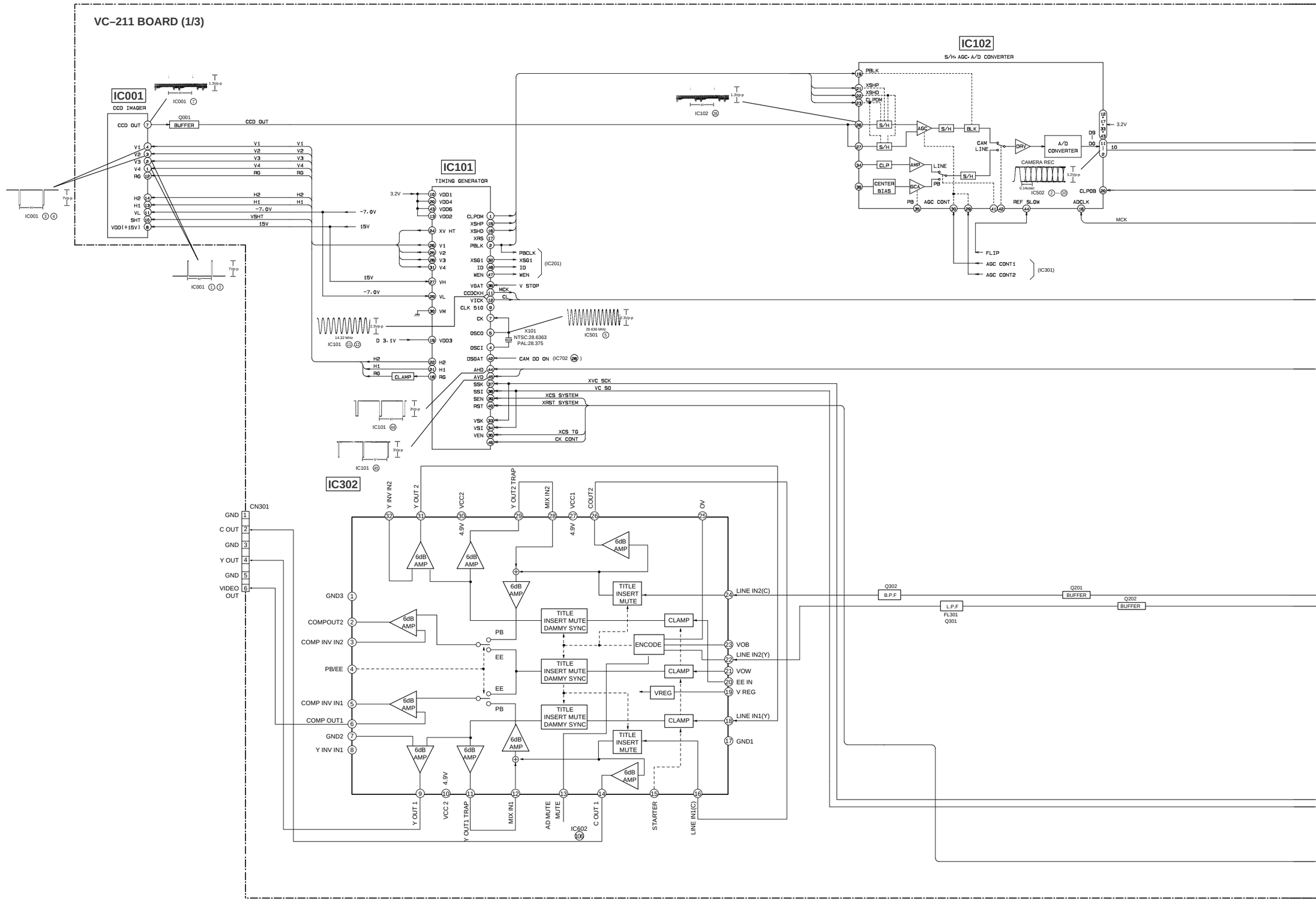
Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-790-257-11	s	CABLE, FLEXIBLE FLAT (FFC-269)
1pc	1-951-473-11	o	HARNESS (DC-57)
1pc	1-951-475-11	o	HARNESS (VO-50)
1pc	1-952-968-11	o	HARNESS (IO-64)
1pc	1-959-294-11	o	HARNESS (LI-59)
1pc	3-865-392-01	s	MANUAL, INSTRUCTION

SECTION 4
DIAGRAMS

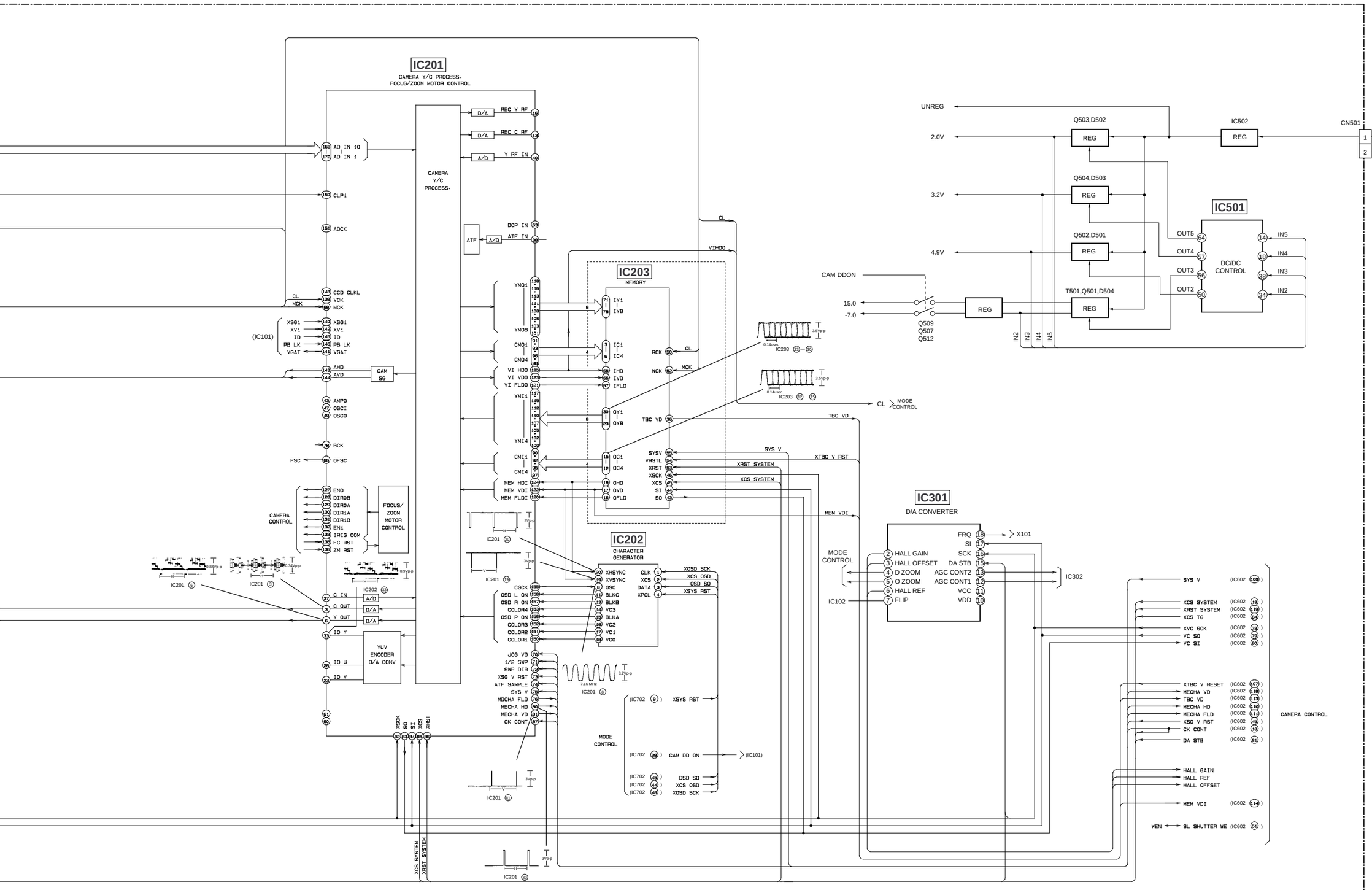
4-1. BOARD LOCATION



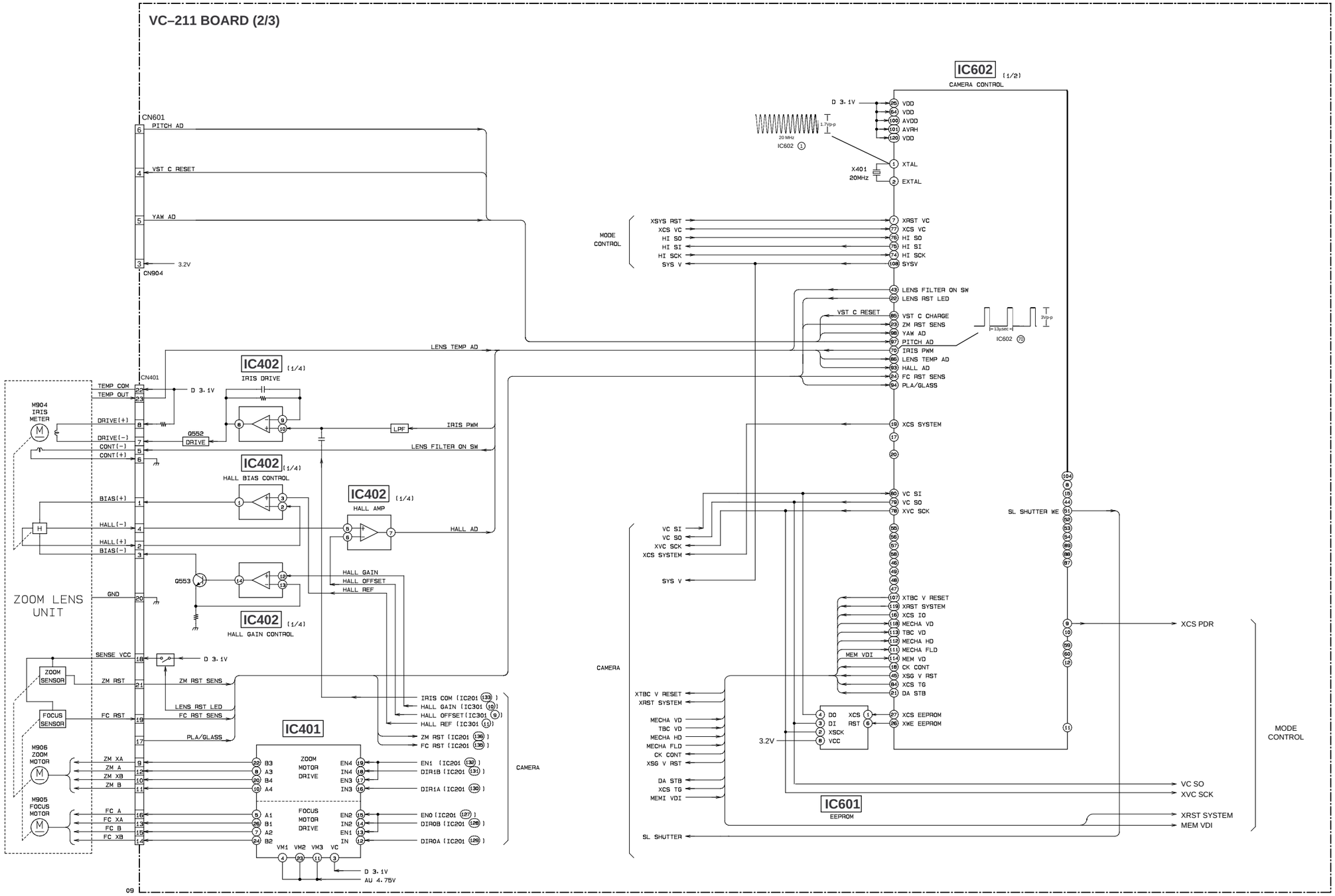
4-2. BLOCK DIAGRAMS
CAMERA BLOCK



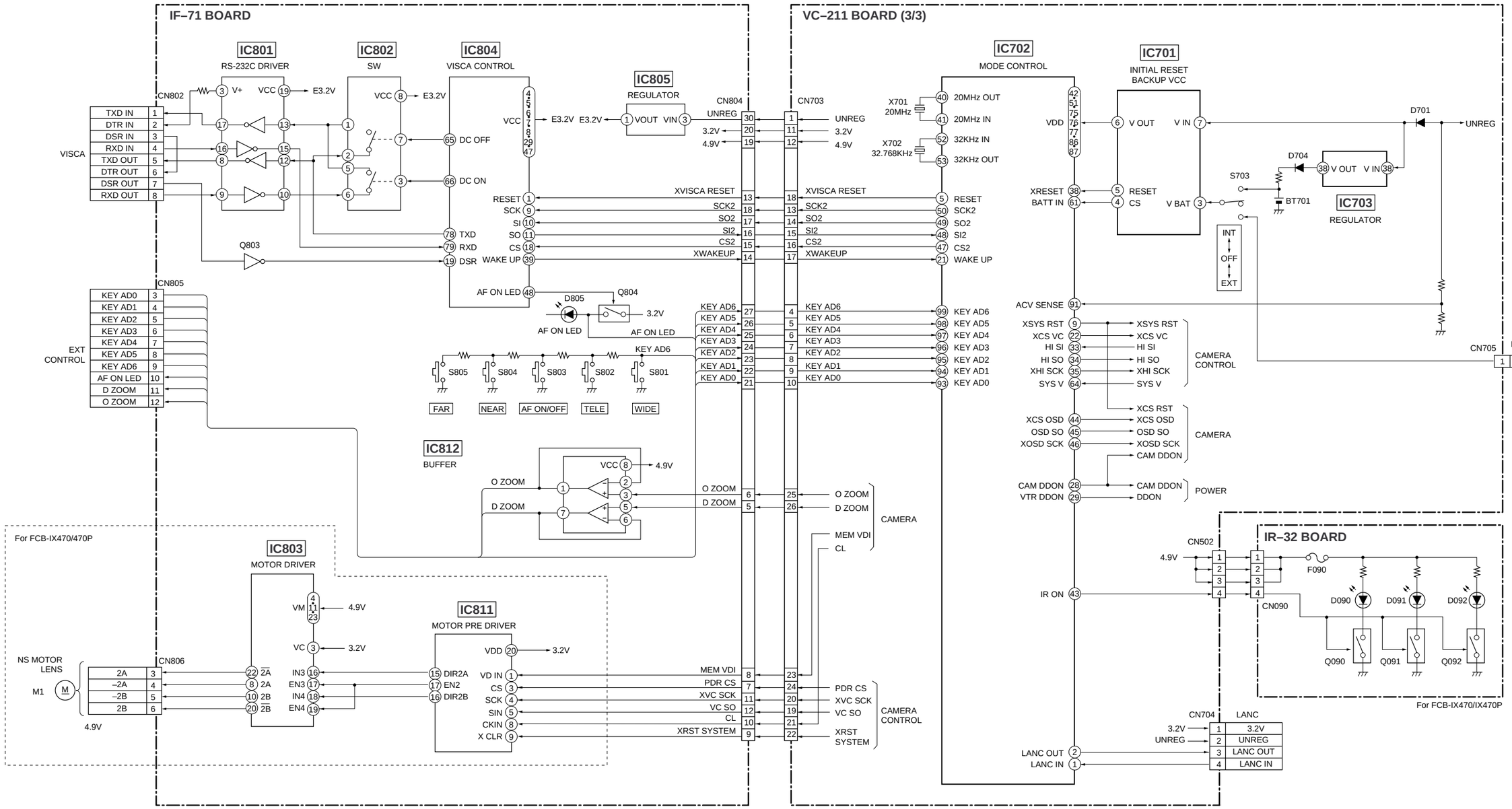
http://getMANUAL.com



CAMERA CONTROL BLOCK (1/2)



CAMERA CONTROL BLOCK (2/2)

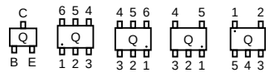


4-3. SCHEMATIC DIAGRAMS AND PRINTED CIRCUIT BOARDS

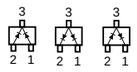
THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.

- **For printed wiring boards.**
- : Pattern from the side which enable seeing. (The other layer's patterns are not indicated.)
- Through hole is omitted.
- There are few cases that the part printed on diagram isn't mounted in this model.
- Chip parts.

Transistor

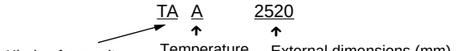


Diode



- **For schematic diagrams.**
- All capacitors are in μF unless otherwise noted. pF: μμF. 50 V or less are not indicated except for electrolytics and tantalums.
- Chip resistor are 1/16W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ.
- Caution when replacing chip parts. New parts must be attached after removal of chip. Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- Some chip part will be indicated as follows.

Example C541 22U TA A L452 10UH 2520

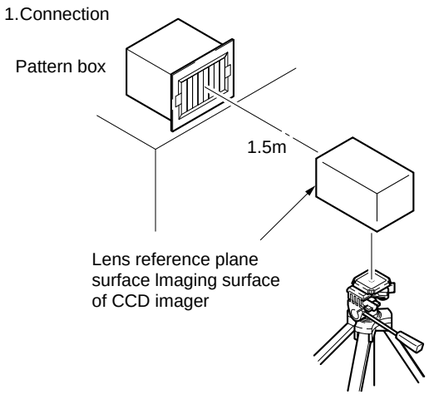


- Constants of resistors, capasitors, ICs and etc with XX indicate tha they are not used. In such cases, the unused circuits may be indicated.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Circled numbers refer to waveforms.

The components identified by mark ⚠or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

- **Measuring conditions waveform.**
- The object is color bar chart of pattern box.

1.Connection



2.Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

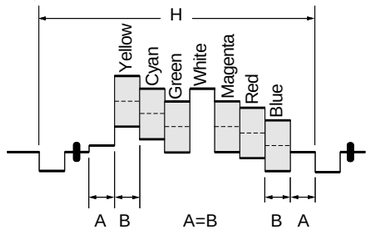


Fig. a (Video output terminal output waveform)

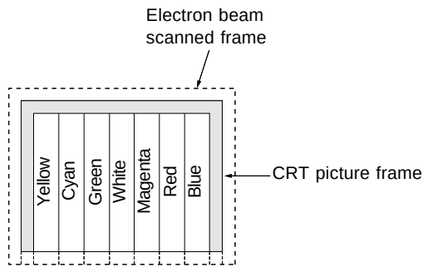
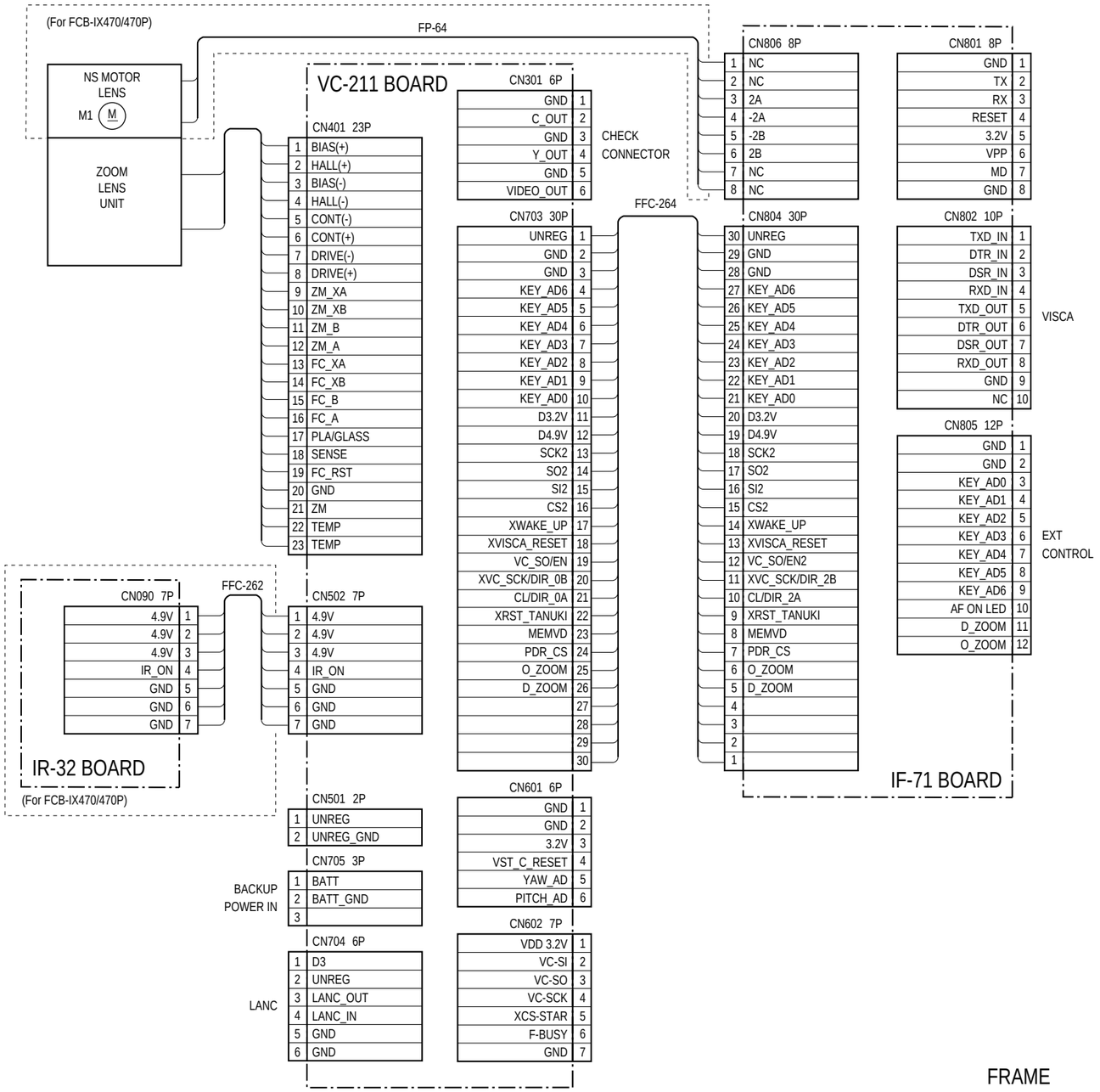


Fig. b (Picture on monitor TV)



FRAME

VC-211 BOARD

VC-211 –A SIDE–

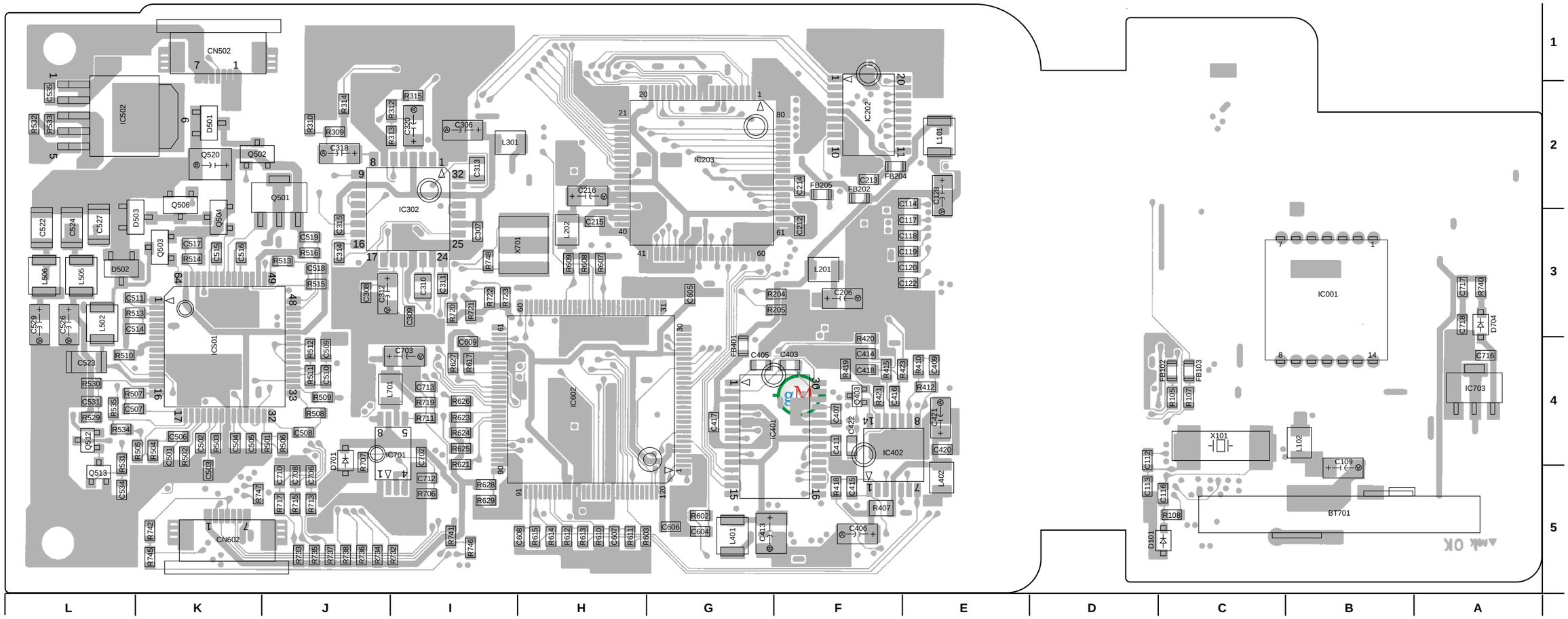
1-672-205-12

VC-211

CN301	I1	IC601	H5	Q511	K4
CN401	F5	IC702	I4	S703	A3
CN501	K1	LF501	L2	T501	K3
CN601	C1	Q001	B3	VDR301	I2
CN703	K5	Q201	G4	VDR302	I2
CN704	I5	Q202	G3	VDR303	J2
CN705	A4	Q301	H4	VDR501	L1
D401	F5	Q302	H4	X601	G5
F501	K2	Q401	G5	X702	I2
FB201	F1	Q402	E4		
FL301	G4	Q504	K4		
IC101	C4	Q507	K4		
IC102	E3	Q508	L4		
IC201	G2	Q509	K4		
IC301	F4	Q510	K4		

VC-211 BOARD

VC-211 –B SIDE–


CN502
IC502
IC302
IC203
IC501
IC602
IC001
IC703
IC402
IC701
CN602
Q520
Q502
Q501
Q506
Q504
Q503
X701
X101
BT701
L301
L101
L201
L202
L502
L505
L506
L401
L102
L701
D501
D502
D503
D704
D701
D101
FB205
FB202
FB204
FB401
FB102
FB103
C202
C306
C318
C320
C216
C215
C213
C214
C212
C128
C114
C117
C118
C119
C120
C122
C206
C605
C609
C703
C405
C403
C414
C418
C415
C423
C410
C409
C420
C421
C402
C407
C411
C422
C417
C413
C406
C604
C606
C602
C717
C718
C716
C112
C113
C116
C109
C102
C101
R204
R205
R420
R419
R421
R416
R412
R407
R602
R609
R608
R607
R748
R722
R723
R720
R721
R627
R617
R626
R623
R624
R625
R621
R628
R629
R719
R711
R706
R712
R701
R707
R747
R717
R715
R713
R742
R745
R741
R746
R732
R734
R736
R738
R737
R735
R733
R610
R611
R612
R613
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R615
R608
R606
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R531
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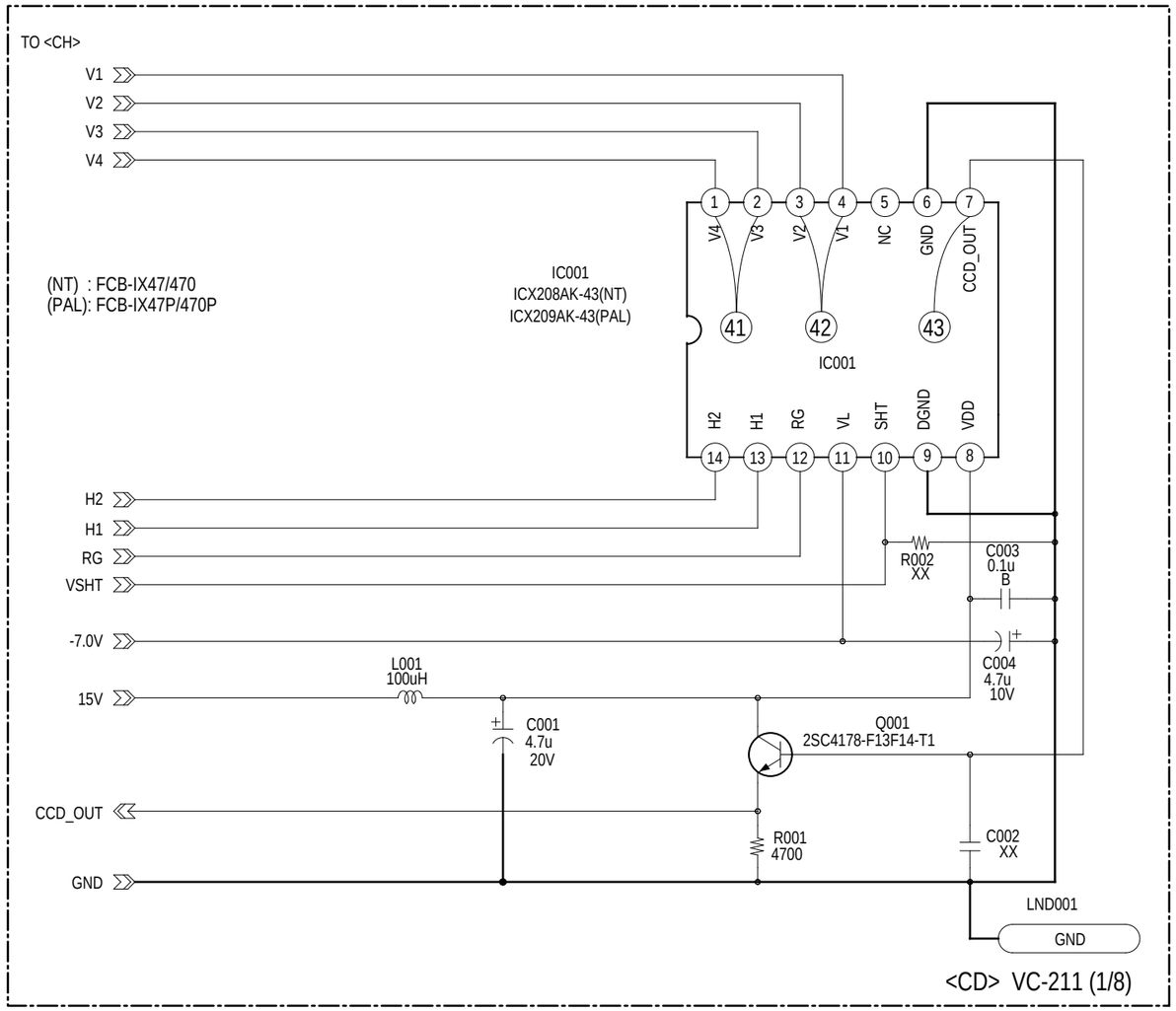
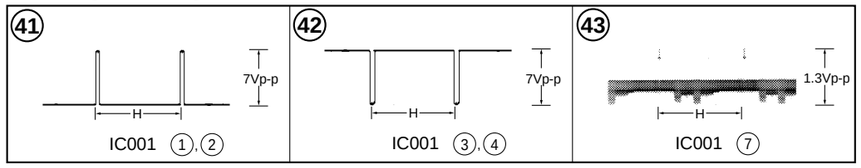
C705
C704
C703
C702
C701
Q513
Q512
Q503
Q504
Q506
Q501
Q502
Q520
D502
D503
D501
D704
D701
D101
FB401
FB205
FB202
FB204
FB102
FB103
IC401
IC602
IC203
IC302
IC501
IC502
IC001
IC703
IC402
IC701
CN602
CN502
X701
X101
BT701
L301
L101
L201
L202
L502
L505
L506
L401
L102
L701

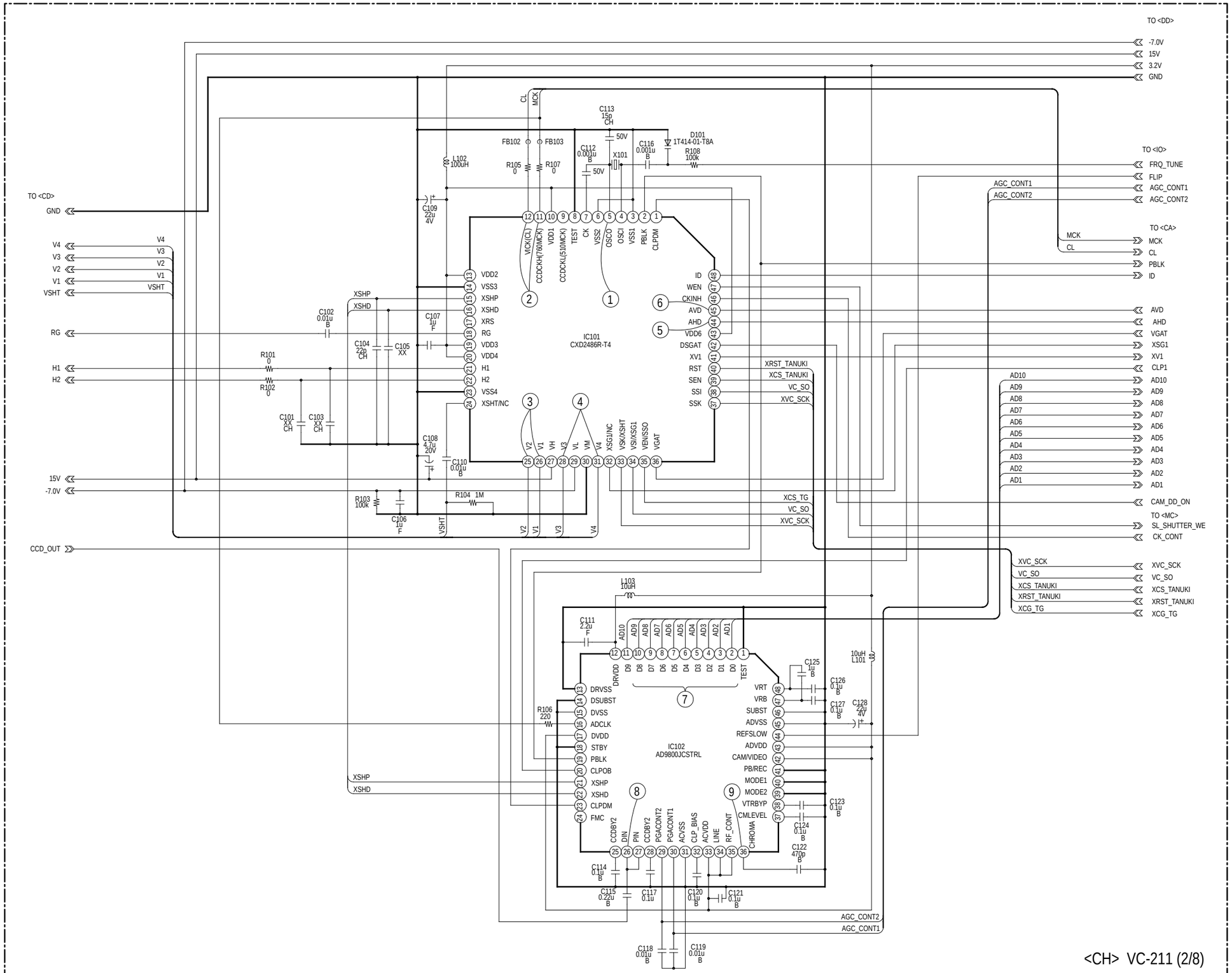


Note on the CCD imager replacement

- The CCD imager is not mounted for the already mounted VC-211 board supplied as the repair parts.
  When replacing the VC-211 board, remove the CCD imager from the old board and install on the new board.
- Perform all adjustments of the camera block when the CCD imager has been replaced.
- Handle the CCD imager with attention such as MOS IC as it may be broken by static electricity in the structure.
  Also, prevent the receiving light section from dust attached and strong light.

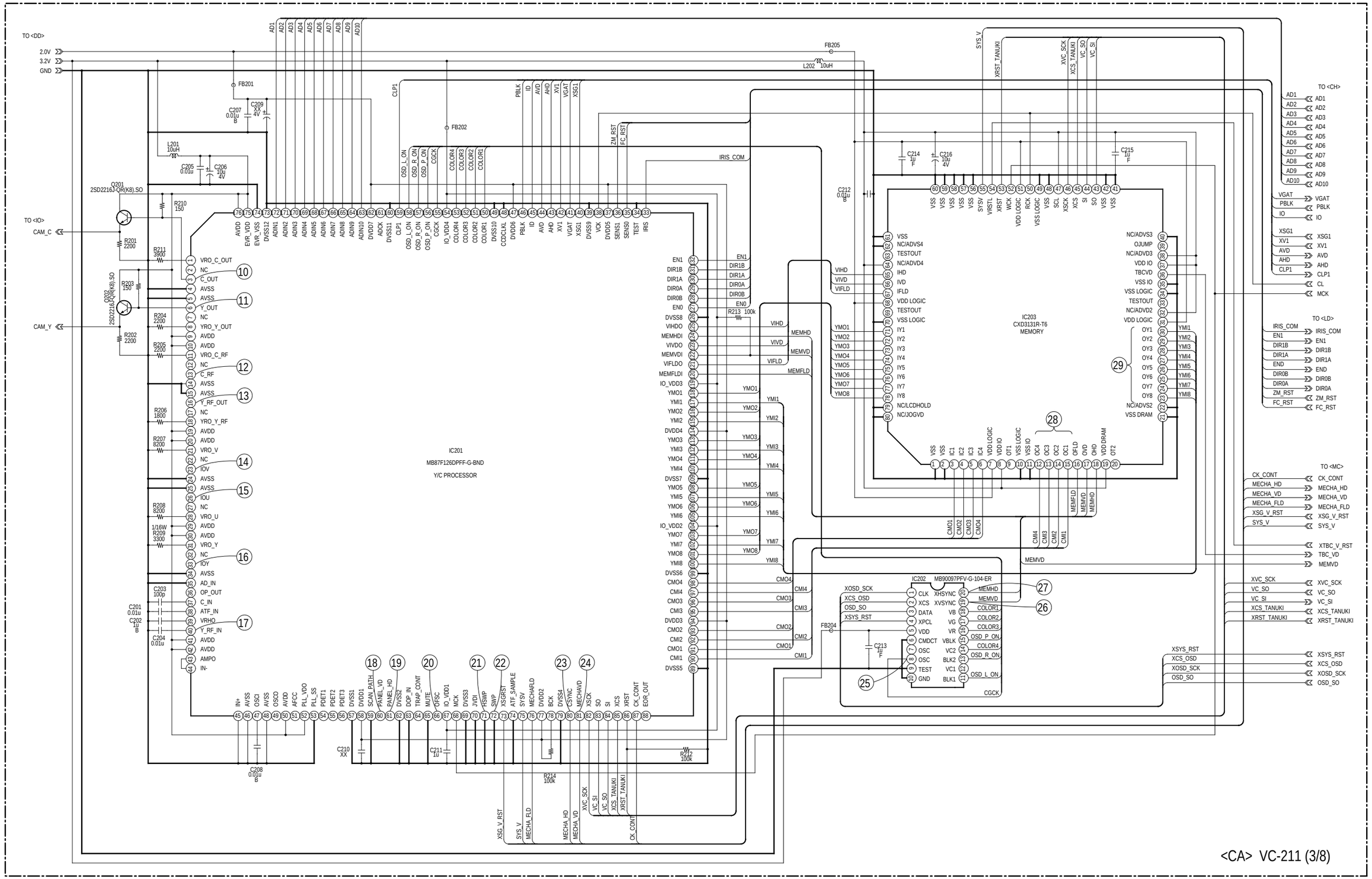
WAVEFORM — VC-211 —





WAVEFORM — VC-211 —

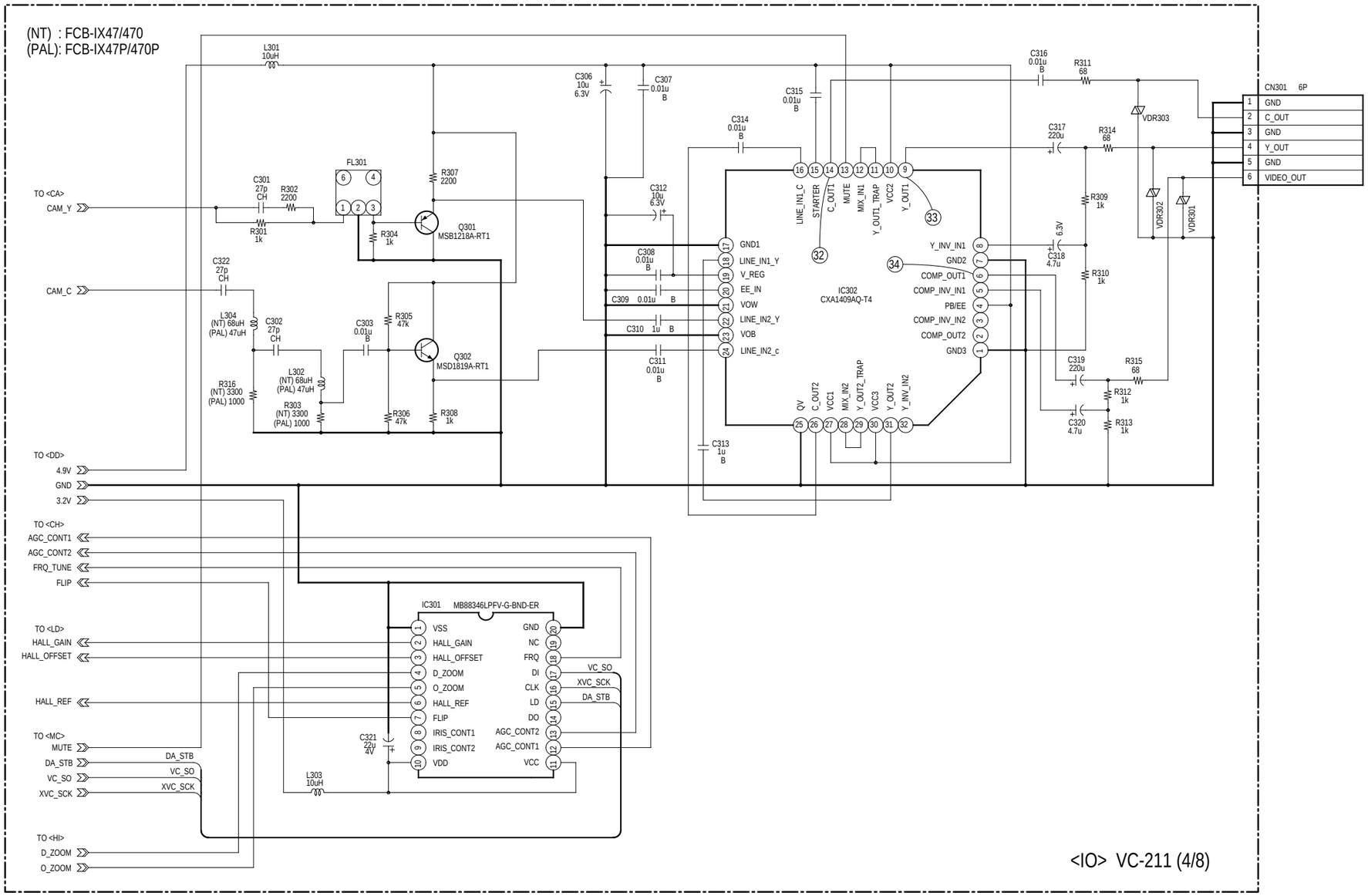
1. 2.3Vp-p, 28.636 MHz, IC101 (5)
2. 2.3Vp-p, 14.32 MHz, IC101 (11), (12)
3. 7Vp-p, IC101 (25), (26)
4. 7Vp-p, IC101 (28), (31)
5. 3Vp-p, IC101 (44)
6. 3Vp-p, IC101 (45)
7. 3.2Vp-p, 0.14usec, IC101 (2) — (10)
8. 1.3Vp-p, IC101 (26)
9. 0.4Vp-p, IC101 (36)



FCB-IX47/47P
FCB-IX470/470P

WAVEFORM — VC-211 —

10 0.34Vp-p, H — IC201 (3)	**20** 3.1Vp-p, 3.58 MHz — IC201 (66)
11 0.84Vp-p, H — IC201 (6)	**21** 3Vp-p, 4V — IC201 (71)
12 0.5Vp-p, H — IC201 (13)	**22** 3Vp-p, 2V — IC201 (72)
13 0.4Vp-p, H — IC201 (16)	**23** PB, 3Vp-p, H — IC201 (80)
14 0.18Vp-p, H — IC201 (23)	**24** 3Vp-p, V — IC201 (81)
15 0.18Vp-p, H — IC201 (26)	**25** 3.2Vp-p, 7.16 MHz — IC202 (8)
16 0.9Vp-p, H — IC201 (33)	**26** 3Vp-p, V — IC202 (19)
17 PB, 0.4Vp-p, V — IC201 (40)	**27** 3Vp-p, H — IC202 (20)
18 3Vp-p, V — IC201 (60)	**28** 3.5Vp-p, 0.14usec — IC203 (12)—(15)
19 3Vp-p, H — IC201 (61)	**29** 3.5Vp-p, 0.14usec — IC203 (23)—(30)

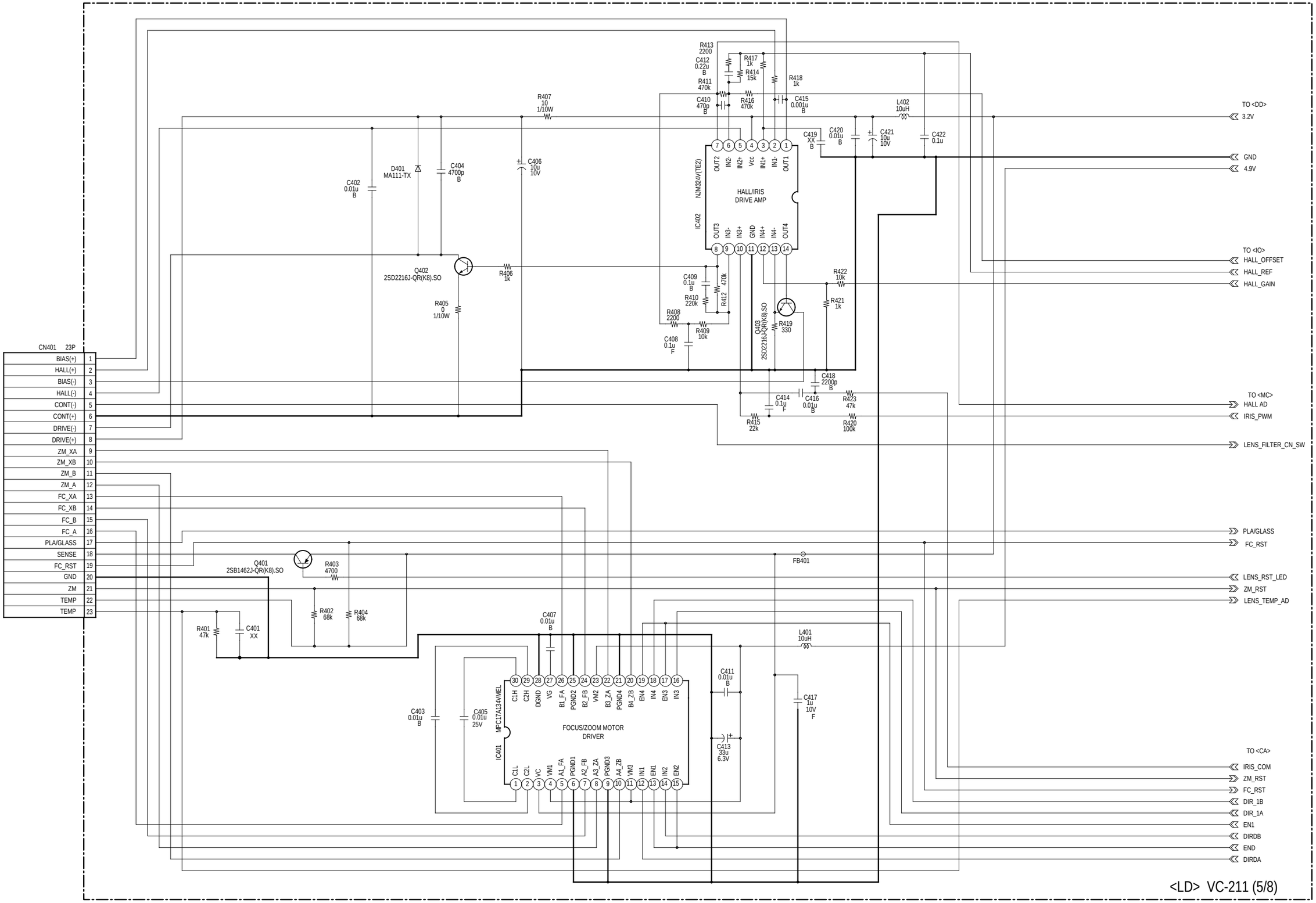


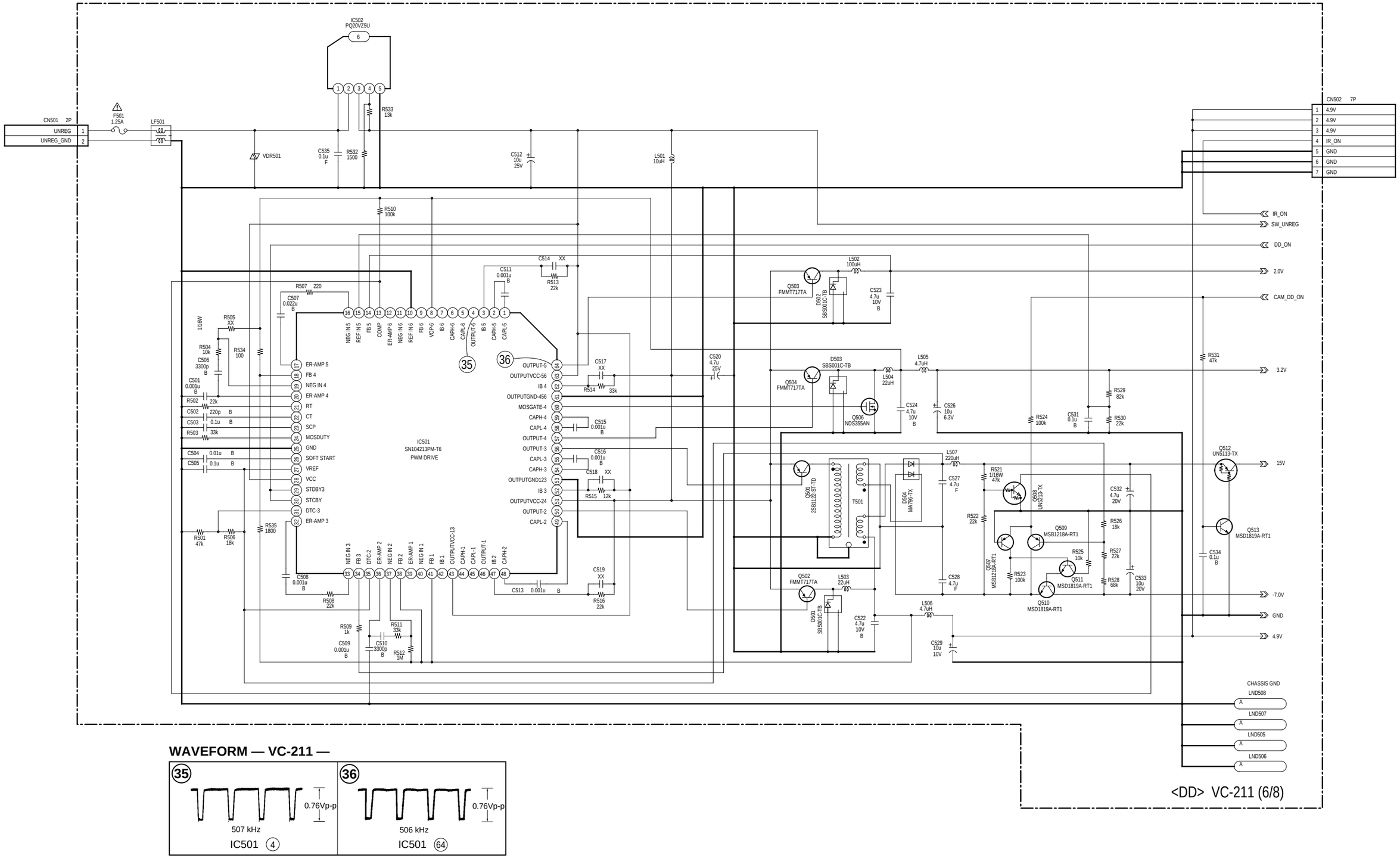
<IO> VC-211 (4/8)

WAVEFORM — VC-211 —

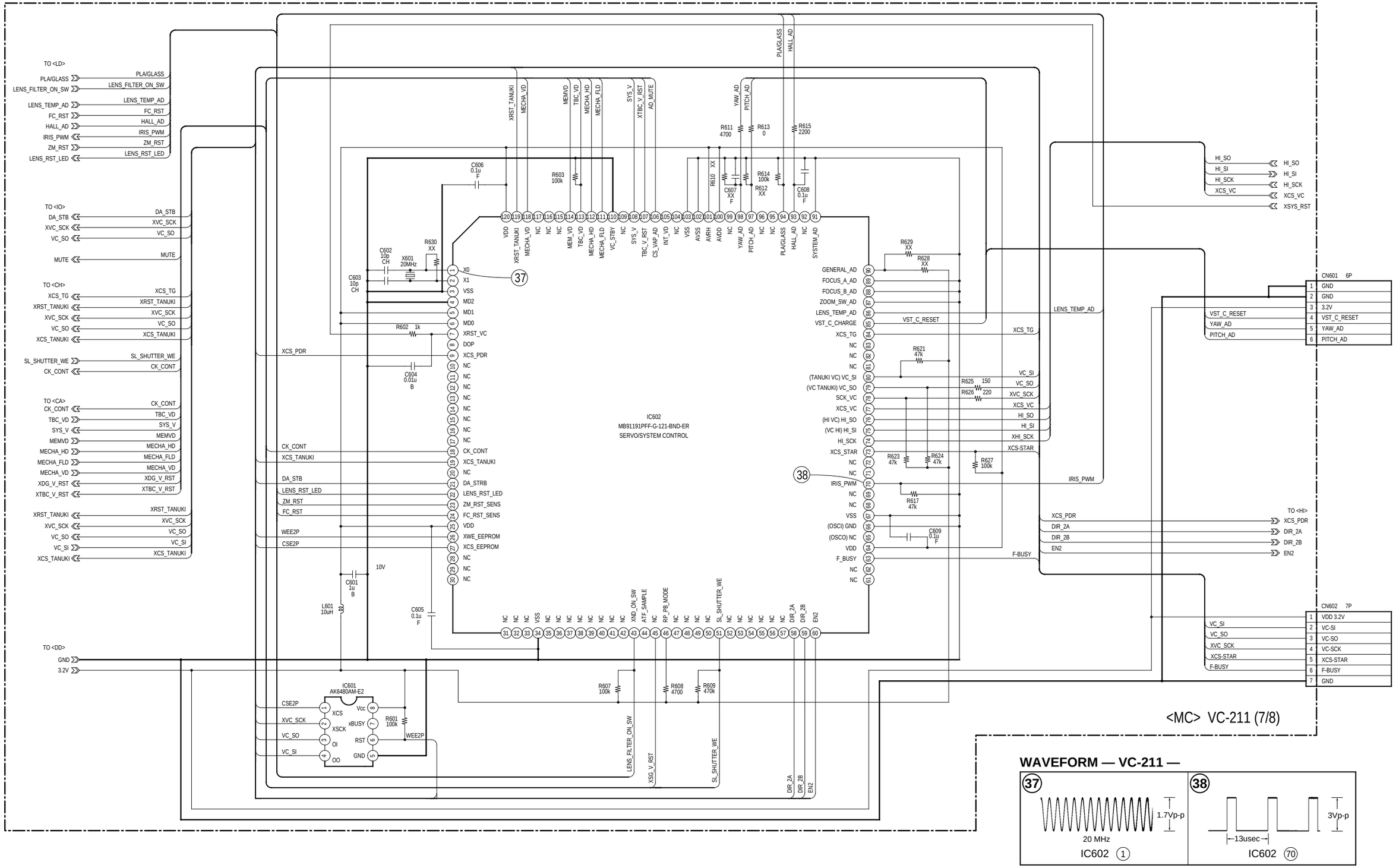
32 1.4Vp-p, H — IC302 (14)	**33** 1.8Vp-p, H — IC302 (9)	**34** 2.1Vp-p, H — IC302 (6)

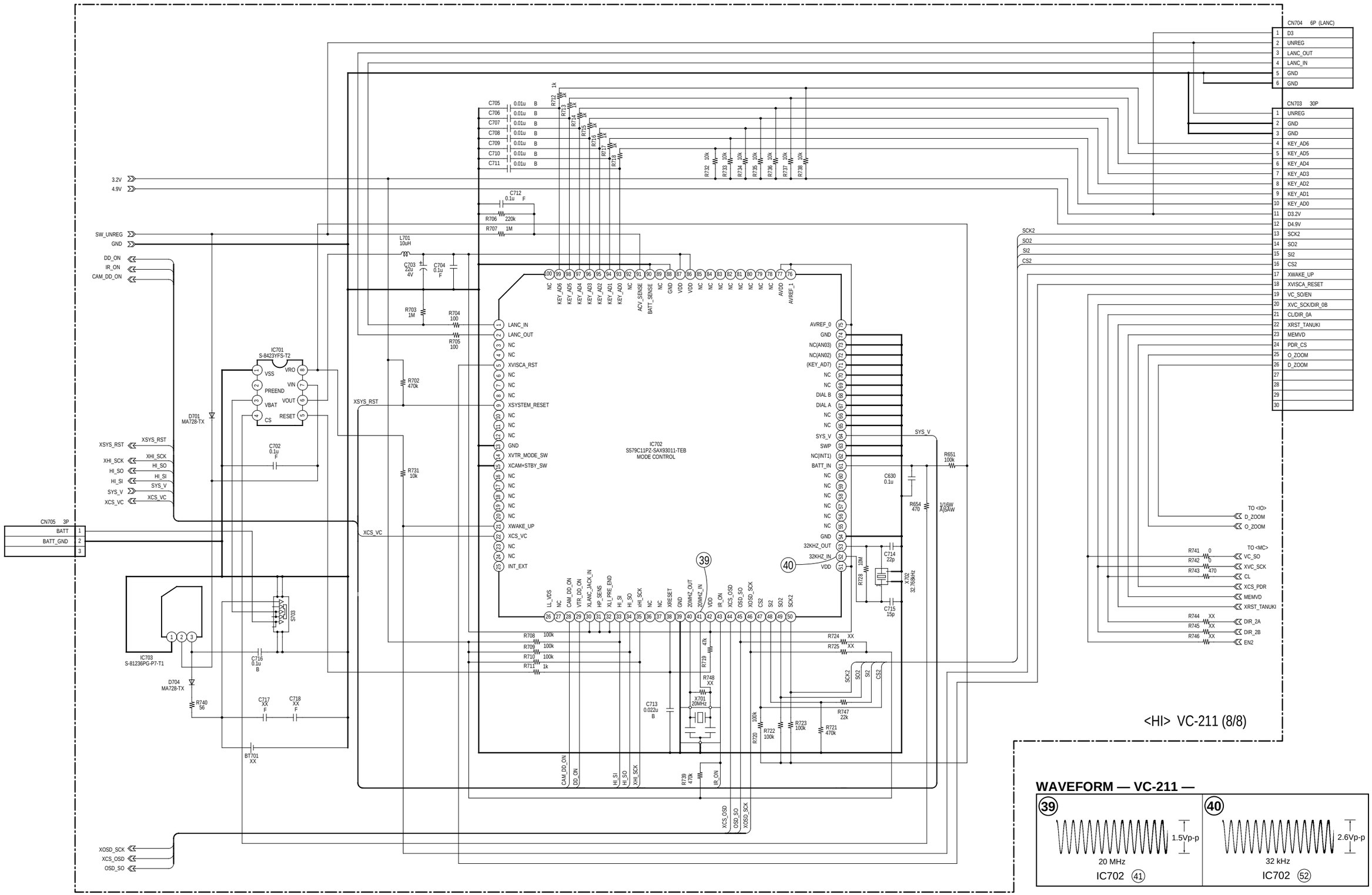
http://getMANUAL.com





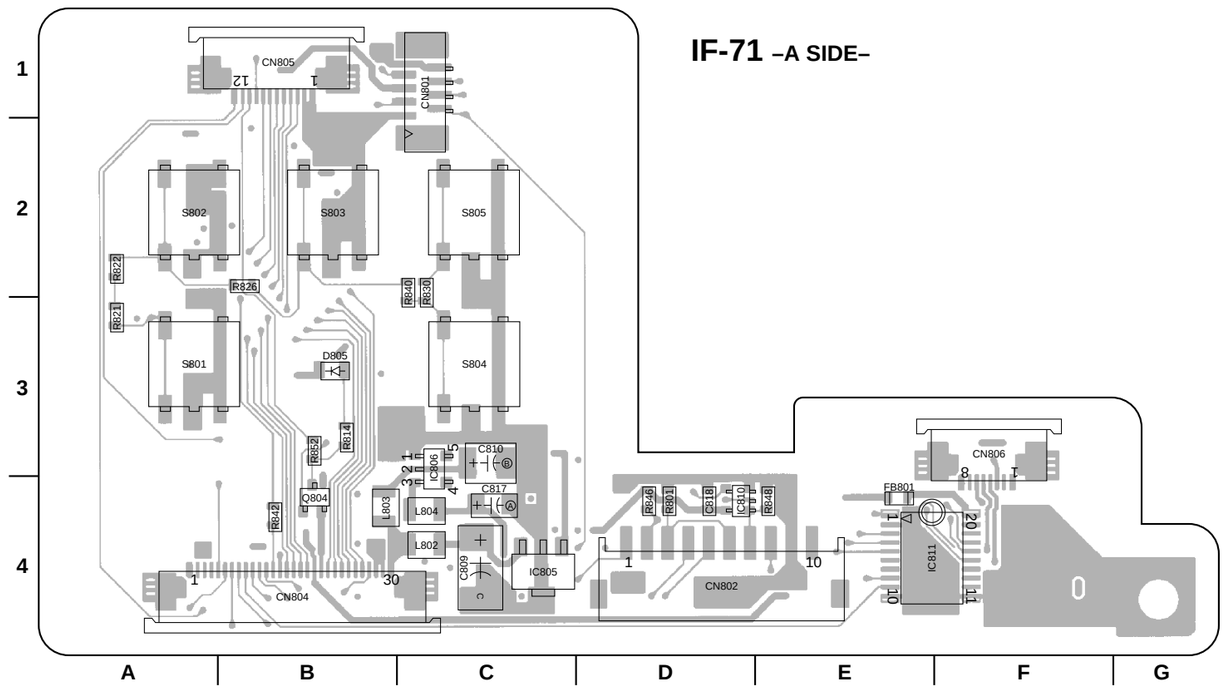
WAVEFORM — VC-211 —


TO <LD>
PLA/GLASS
LENS_FILTER_ON_SW
LENS_TEMP_AD
FC_RST
HALL_AD
IRIS_PWM
ZM_RST
LENS_RST_LED
TO <IO>
DA_STB
XVC_SCK
VC_SO
MUTE
TO <CH>
XCS_TG
XRST_TANUKI
XVC_SCK
VC_SO
XCS_TANUKI
SL_SHUTTER_WE
CK_CONT
TO <CA>
TBC_VD
SYS_V
MEMVD
MECHA_HD
MECHA_FLD
MECHA_VD
XDG_V_RST
XTBC_V_RST
VC_SI
TO <DD>
GND
3.2V
IC602
MB91191PFF-G-121-BND-ER
SERVO/SYSTEM CONTROL
IC601
AK6480AM-E2
C606 0.1u F
C607 XX F
C608 0.1u F
C609 0.1u F
C601 1u B
C602 10p CH
C603 10p CH
C604 0.01u B
C605 0.1u F
X601 20MHz
R602 1k
R603 100k
R607 100k
R608 4700
R609 470k
R610 XX
R611 4700
R612 XX
R613 0
R614 100k
R615 2200
R617 47k
R621 47k
R623 47k
R624 47k
R625 150
R626 220
R627 100k
R628 XX
R629 XX
R630 XX
L601 10uH
10V
37
38
CN601 6P
CN602 7P
TO <HI>
<MC> VC-211 (7/8)
WAVEFORM — VC-211 —
1.7Vp-p
20 MHz
IC602 (1)
3Vp-p
13usec
IC602 (70)

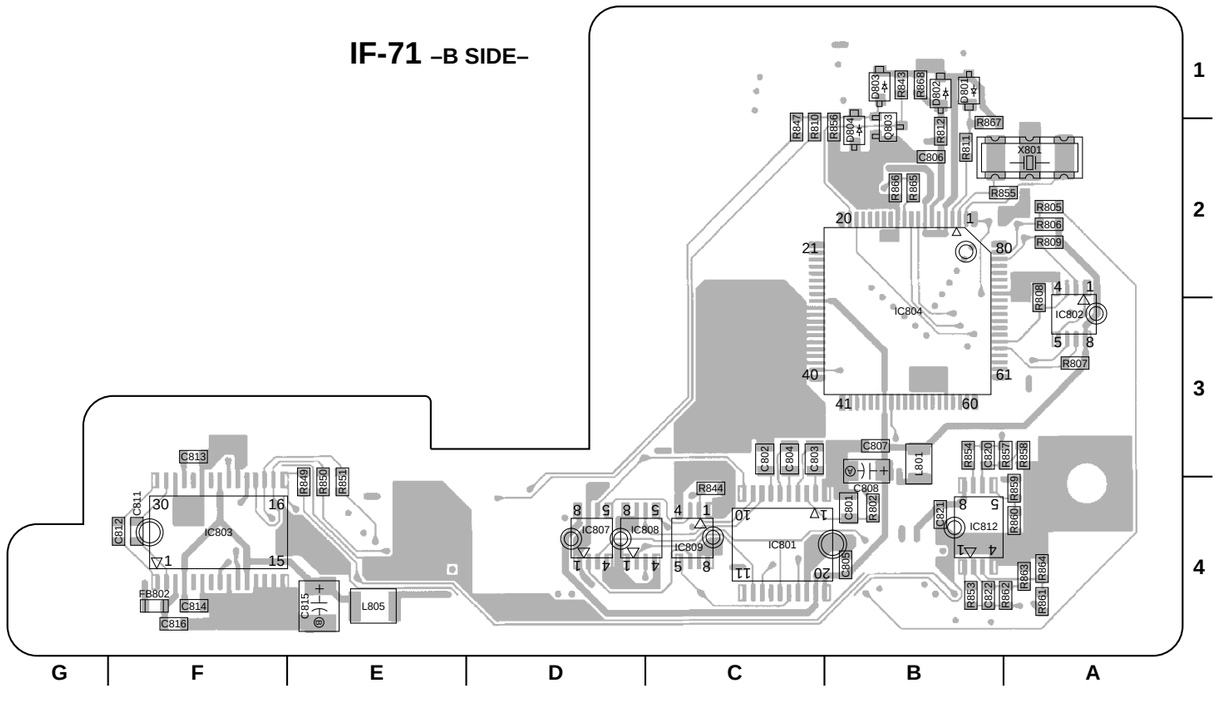


WAVEFORM — VC-211 —

IF-71 BOARD



1-672-206-12



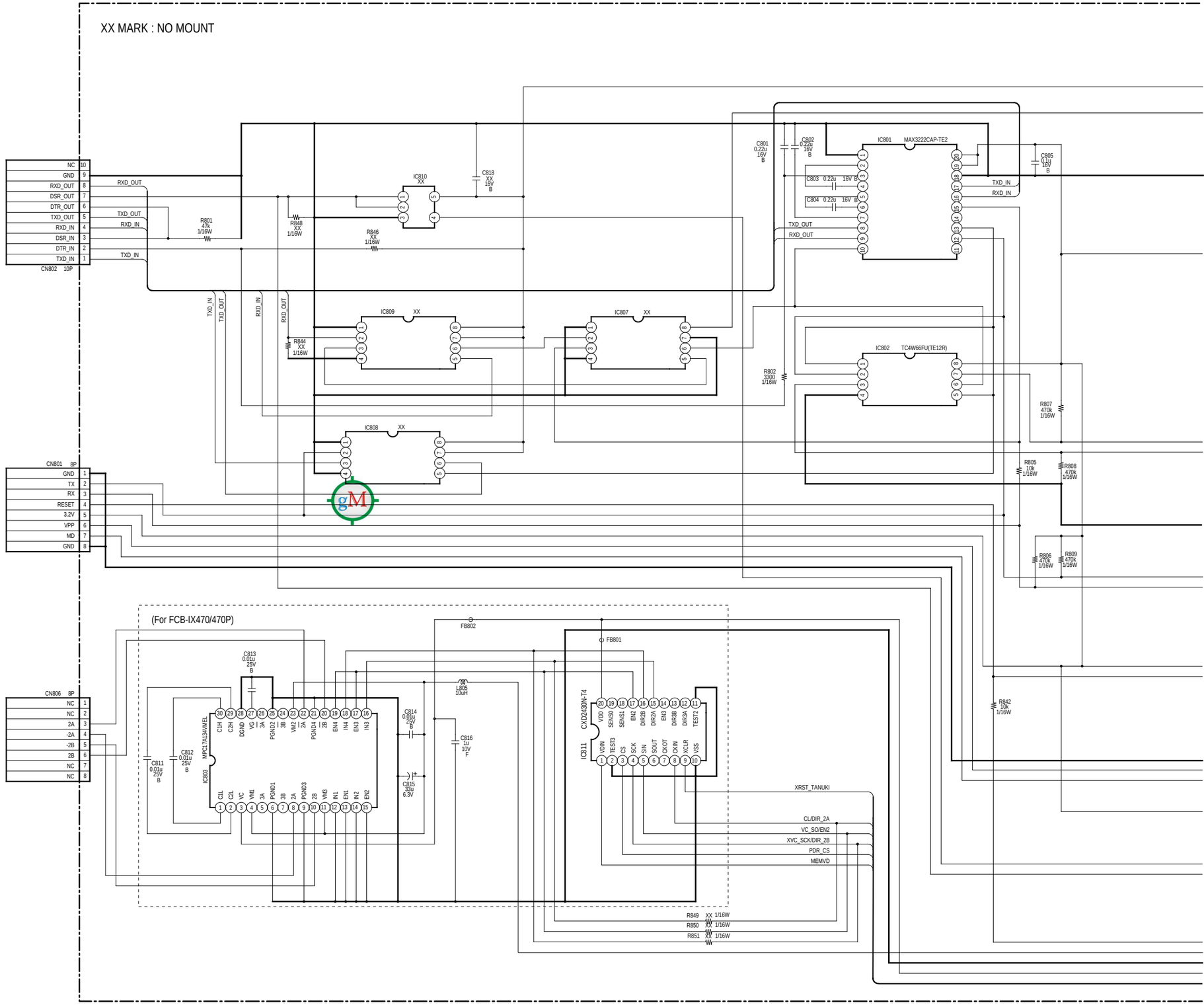
1-672-206-12

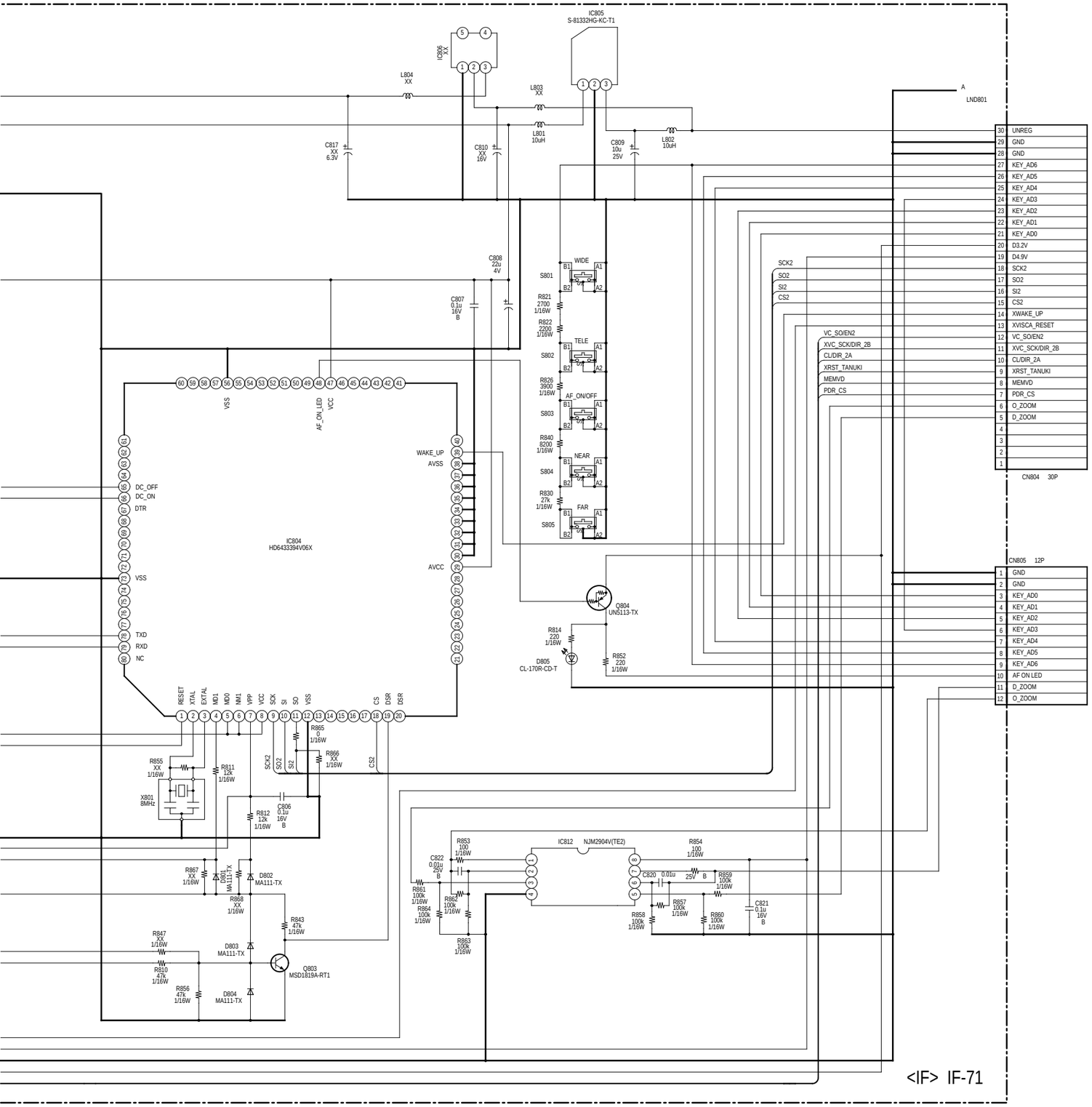
IF-71

* : B SIDE

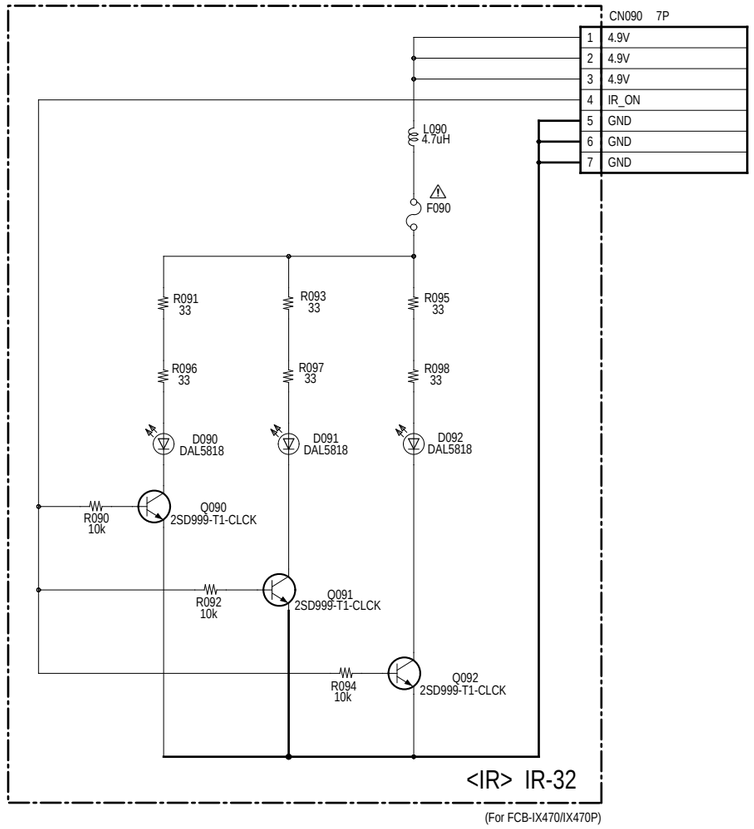
S802	A2
X801	*A2
S801	A3
IC802	*A3
CN805	B1
D803	*B1
D802	*B1
D801	*B1
S803	B2
D804	*B2
Q803	*B2
D805	B3
IC804	*B3
Q804	B4
CN804	B4
IC812	*B4
CN801	C1
S805	C2
S804	C3
IC806	C3
IC805	C4
IC801	*C4
IC809	*C4
CN802	D4
IC810	D4
IC807	*D4
IC808	*D4
FB801	E4
CN806	F3
IC811	F4
IC803	*F4
FB802	*F4

XX MARK : NO MOUNT



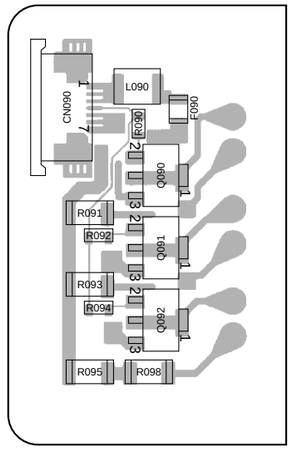

IC805
S-81332HG-KC-T1
IC809
XX
L804
XX
L803
XX
L801
10uH
L802
10uH
C817
XX
6.3V
C810
XX
16V
C809
10u
25V
C808
22u
4V
C807
0.1u
16V
B
A
LND801
CN804 30P
30 UNREG
29 GND
28 GND
27 KEY_AD6
26 KEY_AD5
25 KEY_AD4
24 KEY_AD3
23 KEY_AD2
22 KEY_AD1
21 KEY_AD0
20 D3.2V
19 D4.9V
18 SCK2
17 SO2
16 SI2
15 CS2
14 XWAKE_UP
13 XVISCA_RESET
12 VC_SO/EN2
11 XVC_SCK/DIR_2B
10 CL/DIR_2A
9 XRST_TANUKI
8 MEMVD
7 PDR_CS
6 O_ZOOM
5 D_ZOOM
4
3
2
1
SCK2
SO2
SI2
CS2
VC_SO/EN2
XVC_SCK/DIR_2B
CL/DIR_2A
XRST_TANUKI
MEMVD
PDR_CS
S801 WIDE
S802 TELE
S803 AF_ON/OFF
S804 NEAR
S805 FAR
R821 2700 1/16W
R822 2200 1/16W
R826 3900 1/16W
R840 8200 1/16W
R830 27k 1/16W
IC804
HD6433394V06X
VSS
AF_ON_LED
VCC
WAKE_UP
AVSS
AVCC
DC_OFF
DC_ON
DTR
VSS
TXD
RXD
NC
Q804
UN5113-TX
R814 220 1/16W
D805
CL-170R-CD-T
R852 220 1/16W
CN805 12P
1 GND
2 GND
3 KEY_AD0
4 KEY_AD1
5 KEY_AD2
6 KEY_AD3
7 KEY_AD4
8 KEY_AD5
9 KEY_AD6
10 AF ON LED
11 D_ZOOM
12 O_ZOOM
RESET
XTAL
EXTAL
MD1
MD0
NM1
VPP
VCC
SCK
SI
SO
VSS
CS
DSR
DSR
R865 0 1/16W
R866 XX 1/16W
R855 XX 1/16W
R811 12k 1/16W
X801 8MHz
R812 12k 1/16W
C806 0.1u 16V B
R867 XX 1/16W
D801 MA111-TX
D802 MA111-TX
R868 XX 1/16W
R843 47k 1/16W
R847 XX 1/16W
R810 47k 1/16W
D803 MA111-TX
Q803 MSD1819A-RT1
R856 47k 1/16W
D804 MA111-TX
IC812 NJM2904V(TE2)
R853 100 1/16W
C822 0.01u 25V B
R861 100k 1/16W
R862 100k 1/16W
R864 100k 1/16W
R863 100k 1/16W
R854 100 1/16W
C820 0.01u 25V B
R859 100k 1/16W
R857 100k 1/16W
R858 100k 1/16W
R860 100k 1/16W
C821 0.1u 16V B

<IF> IF-71



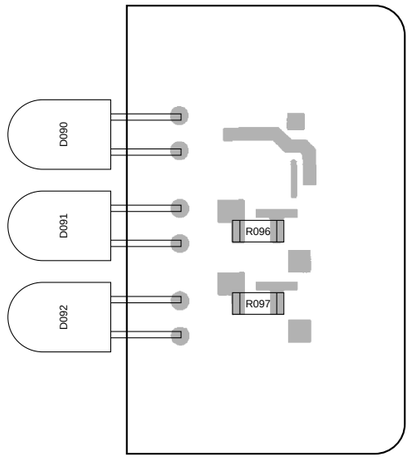
(For FCB-IX470/IX470P)

IR-32 –A SIDE–



1-672-207-11

IR-32 –B SIDE–



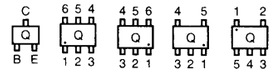
1-672-207-11

プリント図，回路図用共通ノート

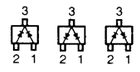
【プリント図ノート】

- ▒▒▒ は見ている側のパターン。
  内側の2層及び裏側のパターンについては，表示されていません。
  (他のパターンについては表示されません。)
- スルーホールは省略
- プリント図には，本機で使用していない部品が記載されている場合があります。
- チップ部品

トランジスタ



ダイオード



【回路図ノート】

- チップ部品交換時の注意
  取り外した部品は再使用せず，未使用の部品をご使用ください。
  タンタルコンデンサのマイナス側は熱に弱いため，注意してください。
- チップ抵抗で指示のないものは，は1／16W以下。
  kΩ ＝ 1000 Ω，MΩ ＝ 1000 kΩ
- ケミコン，タンタルを除くコンデンサで，耐圧50V以下のものは，その電圧を省略。単位はすべてμF。(pはpF)。
- 可変抵抗と半固定抵抗で，B特性の表示は省略。
- チップ部品には下記のように表示したものがあります。

例 C 541 L 452
22U 10UH
TA A 2520
↑ ↑ ↑
種類 温度特性 外形寸法 (mm)

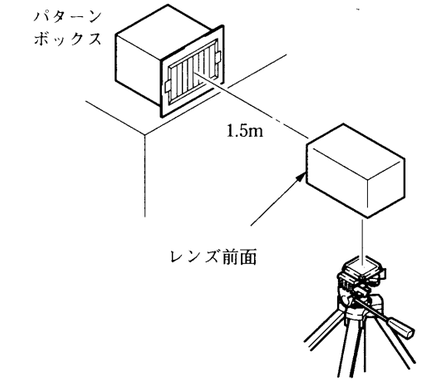
- 抵抗，コンデンサ，ICなど定数にXXがあるものは，使用していない事を示しています。このため，使用していない回路が記載されていることがあります。
- ○番号は，波形図の照合番号。

⚠印の部品，または⚠印付の点線で囲まれた部品は，安全性を維持するために，重要な部品です。
従って交換時は，必ず指定の部品を使用して下さい。

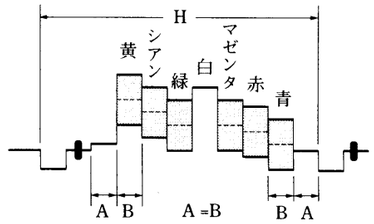
【波形測定条件ノート】

- 被写体はパターンボックスのカラーバー。

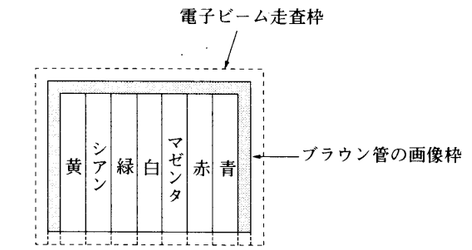
1. 接続図



2. モニタは下図のように画枠調整してください。



図a (映像入出力端子出力波形)

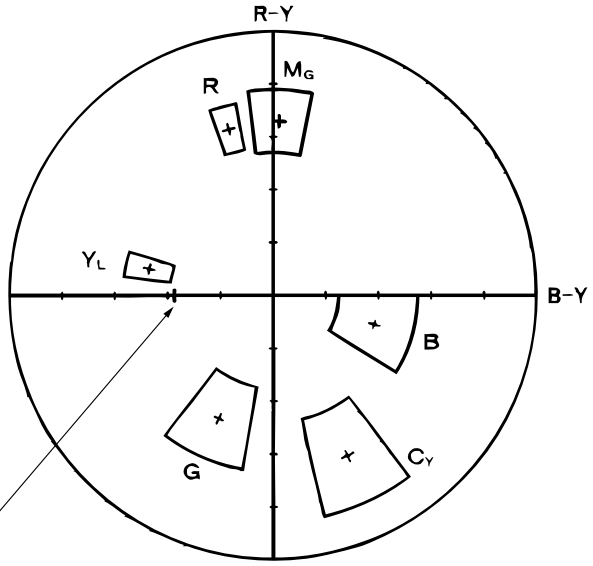


図b (モニタテレビの画像)

VECTORSCOPE SCALE

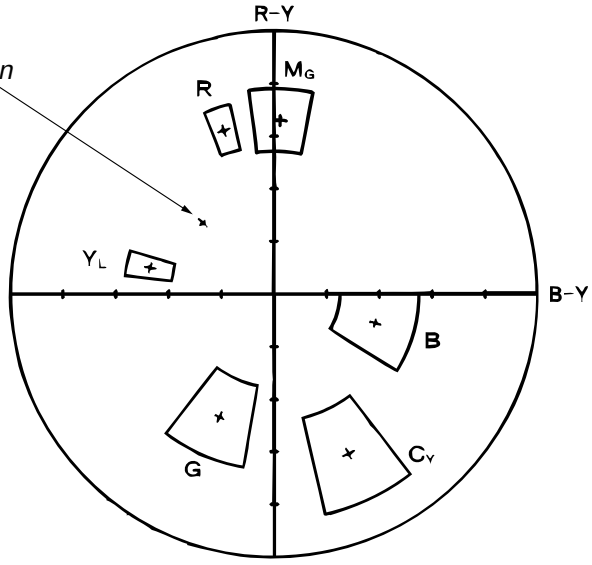
OHP シートにコピーしてください。
Copy on a transparent sheet.

For NTSC model



Burst position

For PAL model



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